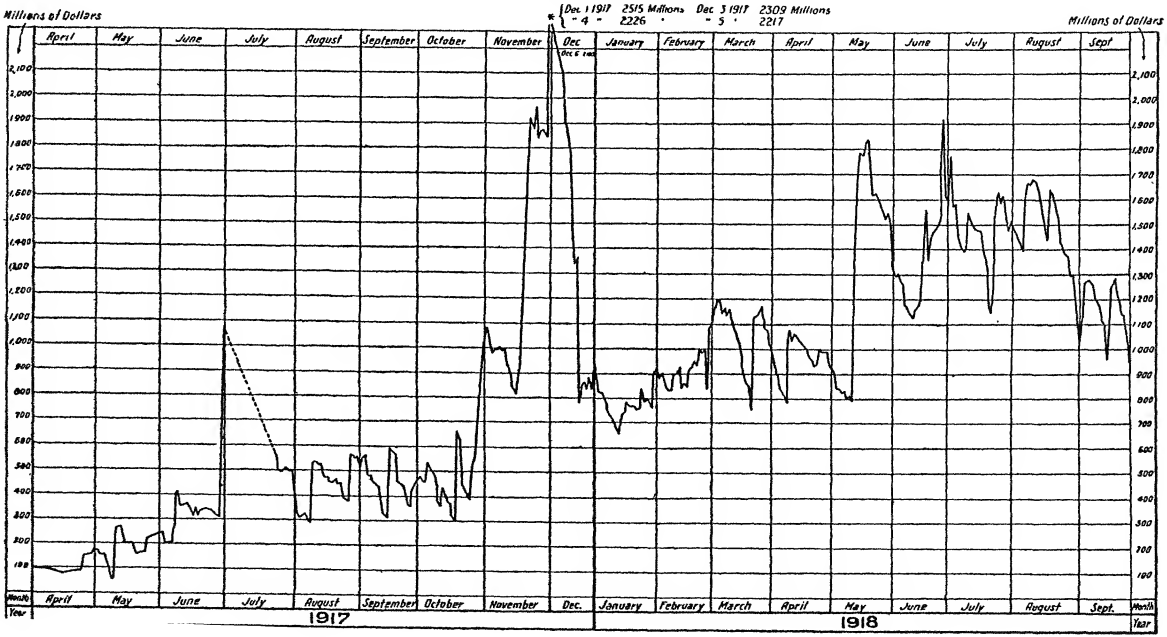
NET BALANCE OF THE UNITED STATES TREASURY

April 2 1917 to September 30 1918



WAR BORROWING

A STUDY OF TREASURY CERTIFICATES OF INDEBTEDNESS OF THE UNITED STATES

BY

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INTRODUCTION

This essay traces back to a running comment upon the actual course of our war financing made day after day to the bare handful of students into which the Economic Seminary of the Johns Hopkins University had in the early months of the nation's entry into the great struggle swiftly resolved itself. Any worth that the study may possess is thus, in the first instance, to be shared with this little group since, to a man, drawn into the country's service.

It is never easy to write critically of current fiscal practices, least of all when the nation's existence hangs in the balance. Many facts are uncollected, much material may not be made accessible, and from first to last the writer is held and tied by his wish to help and not hurt. Yet if his inquiry is to serve any present use, the student cannot wait until present policies have become historic records. With the certainty of some incompleteness, at the risk of unfortunate oversight or avoidable error, he will offer that which he has rather than await the comfortable detail of the full event.

This is the mood in which the present study is sent forth. Sound and admirable in the main, our war borrowing has been marred here and there by serious error, injuring us now and certain if

unamended to plague us hereafter. Past experience, theoretical analysis, present evidence — all point to this conclusion.

If anything here written will hasten, by wider discussion and better understanding, a careful reexamination of those phases of our borrowing policy to which attention is drawn, the author's venture may seem to have been not entirely in vain — whatever its prematurity.

BALTIMORE, November 1, 1918.

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I

THE PAST

A CAREFUL historian of financial thought has lately declared that there are few economic questions upon which opinion has been so divided and for so long a time as the best method of raising funds for the conduct of war.[1] For two centuries and a half statesmen and economists have debated as to whether in time of war all supplies should be raised by taxation or some reliance should be had upon public credit. In the present war this controversy has been waged with new intensity but with old-time uncertainty. In so far as settlement has been reached as to the adjustment of war expenditure between taxes and loans, the formula has been opportunist rather than definitive.

Curiously enough, the discussion,[2] spirited and

[1] In W. R. Scott's admirable address to the Economic Science Section of the Royal Philosophical Society of Glasgow on "Adjustment of War Expenditure between Taxes and Loans" (Glasgow, 1917); reprinted in the same author's "Economic Problems of Peace after War: Second Series" (Cambridge, 1918).

[2] See, for example, "Financing the War," a series of papers in *The Annals of the American Academy of Political and Social Science,* January, 1918; also "Financial Mobilization

sustained though it has been, has had to do almost exclusively with the relative extent to which public borrowing should be used in war finance, to the virtual neglect of the particular manner in which such borrowing should be effected. Interest rate, maturity, amortization are details of fiscal technique — the determination of which must in the last instance be left to the financial administrator. But there are larger and more fundamental problems of war-time borrowing which may not be so dismissed. Shall the nation raise its loans by long-term obligations absorbed directly by public subscription? Shall the borrowing be in the form of temporary loans discharged or renewed from time to time as maturing? Shall the proceeds of popular long-term loans be anticipated by short-term bank borrowings? Each policy is attended with distinctive consequences, not only as to the supply of public funds but as to the wider effects upon national industry and economic well-being.

Upon one of these courses — short-term borrowing in anticipation of the proceeds of funded loans — our own country, following hard upon recent European experience rather than traditional American practice, has entered. If not unconsciously chosen, there has been at least little public comprehension of this procedure and even less examination of its consequences. The close of the first phase of our war financing, with the prospect of further extraordinary expenditure imminent enough to jus-

for War," papers presented at the joint conference of the Western Economic Society and the City Club of Chicago, June 21–22, 1917.

tify the amplest financial provision — is a proper time to review our borrowing policy and to study its effects, fiscal, economic and social.

A notable feature of the present war financing of the United States has been the large part played by Treasury certificates of indebtedness. In outright volume the gross amount of such certificates thus far [November 1, 1918] issued has been greater than the principal sum of the first three Liberty Loans and will soon exceed that of the first four. Emitted in short maturities, the actual amount of certificates at any time outstanding — now authorized to a maximum of $8,000,000,000 — has, with a single brief exception (July 30–August 9, 1917) been considerable since our first entry into the war, and since August, 1917, has never been less, at the close of any month, than $1,250,000,000, rising as high as $3,936,339,500 (April 30, 1918), with an amount nominally outstanding on September 30, 1918, of $4,100,000,000.[3] The Treasury has made use of such certificates to anticipate the yield of war loans and war taxes for national defense and for Allies' credits, and has prepared for continued reliance upon the same expedient. Finally the certificates have been deemed capable of exerting important influence upon the money market and upon the price

[3] Monthly "Financial Statement of the United States Government," formerly issued as "Statement of the Public Debt" (Division of Bookkeeping and Warrants, Treasury Department). No statements were issued for July, August, September and October, 1917, and for these months, as well as for September, 1918, the nominal aggregates of the outstanding issues have here been used.

level, and the efforts of the Treasury in harmony with the Federal Reserve Board have been expended in guiding and shaping this influence.

The use of short-term negotiable obligations is no new device in the financial experience of the United States. Temporary loans evidenced by certificates of indebtedness have served from time to time throughout our national history to tide over budget deficits or to anticipate future revenues. Morris, Gallatin, Chase and the nearer figures of our own decades are associated with their emission. Recourse has been had to such measures in the monetary disorder of peace times as in the financial stress of war. Sometimes intended only for bank absorption, sometimes planned for general investment, the issues have differed widely in the technique of amount, denomination, maturity, interest yield, convertibility and redemption as well as in the more important elements of circulation and privilege.

The extraordinary use of certificates of indebtedness in our present war financing may not be safely projected against this background of past experience. The financial requirements we face and the dislocations to which our markets are exposed present a group of conditions so unparalleled in degree as to be virtually new in kind. Moreover, the service which the certificate is now designed to render is very different from its older function. Instead of a temporary expedient to put the Treasury in funds for an interim period until established revenues from funded loans or extraordinary taxes become available or until the credit market recovers

from some convulsion that has made normal financing impossible, the certificate of indebtedness is now being used as a recurrent device for effecting short time borrowing from the banks and to some extent from investors in anticipation of the proceeds of loans and taxes, being thereafter funded into or extinguished out of the proceeds of such loans and taxes.

But withal, there are incidents in our earlier use of short-term obligations that offer instruction in the present juncture. We are still far from the time wherein it will be possible to estimate independently the full effect of our present fiscal policy. Until then the procedure actually adopted by the Treasury in this particular can profitably be examined with regard to what has heretofore transpired, even though present conditions and requirements are very different.

The use of the term "treasury certificate of indebtedness"— in preference to "treasury note," "treasury bill," "bill of credit," "United States note"— to designate an instrument of short-term borrowing is a matter of statutory designation and administrative practice rather than of judicial precision or text-book definition.[4] With regard to fiscal service and economic effect as well as to actual employment in the financial experience of the

[4] Even in the present financing the terms "certificate of indebtedness," "treasury certificate of indebtedness," and "United States certificate of indebtedness" have been used more or less indiscriminately in the administrative texts. On the whole "'treasury certificate of indebtedness' is probably the term most commonly used by the treasury officials"— and there has been increasing disposition to formalize this term.

United States, a Treasury certificate of indebtedness may be described as a freely negotiable, short-term government obligation — differing from the evidence of a bank loan in degree of negotiability, from a funded bond in hardly anything more than a shorter term of maturity, from a demand note in nominal non-convertibility upon presentation. In addition to the widest latitude in technical form, a certificate of indebtedness may bear interest or be non-interest bearing. It may have a definite date of maturity or be payable or fundable at the option of the government at any time or after a fixed date. It may be made receivable for all or for certain public taxes or dues or be made acceptable for specific public payments, as bond subscriptions or public land purchases. It may be secured as to interest or principal by assigned tax revenues or prospective loan proceeds, or be protected only by the pledge of public faith. It may be issued in direct discharge of public accounts payable or be marketed or hypothecated as a funded obligation. It may even be vested with limited privileges of circulation or be endowed with full legal tender quality.

In the first century and a quarter of our national existence there were six occasions on which the Treasury had recourse to the issue of short-term negotiable obligations: (A) The War of 1812, (B) The Crisis of 1837, (C) The Mexican War, (D) The Crisis of 1857, (E) The Civil War and (F) The Crisis of 1907. In addition authority was conferred but not exercised for the issue of certificates of indebtedness in connection with the

revenue legislation of the Spanish-American War. Certain issues of short-term obligations, otherwise designated but in no manner different from certificates of indebtedness, are included in the foregoing without however permitting this extension to justify the inclusion of other emissions made under these alternate terms, of essentially different character.[5] The detailed circumstances attending these several issues are outlined in the standard histories[6] of our national financing, and it will only be necessary in this connection to refer to the salient features which distinguished purpose and result.

(A) With bitter experience in the use of colonial and continental paper currencies fresh in mind, the Federal Convention of 1789 debated long and acrimoniously the proposal to deny both States and Union authority "to emit bills of credit."[7] Eventually the States were specifically prohibited, and Congress was empowered only in the general grant "to borrow money on the credit of the United States." An express authorization was stricken from the committee report, and the record of the accompanying debate shows that reluctance "to tie the hands of the Legislature" as to full borrowing

[5] Thus the "treasury notes of 1890," issued under the silver purchase clause of the Sherman Act of 1890 have not been included.

[6] Knox, "United States Notes" (third edition revised, New York, 1892); Bayley, "History of the National Loans of the United States" (Tenth Census of the United States, vol. vii, Washington. 1884); Bullock, "Essays on the Monetary History of the United States" (New York, 1900); Dewey, "Financial History of the United States" (New York, 1903).

[7] Knox, chap. i–v.

power was perhaps the most important factor in preventing outright prohibition. The final phrasing was a compromise acceptable to both elements — the one believing that resort to such an expedient was possible if occasion required under the general borrowing power; the other convinced that the omission of specific authorization would "shut and bar the door against paper money."

This hostility to paper emissions was fully shared by Alexander Hamilton. As a policy, he maintained that "the wisdom of the Government will be shown in never trusting itself with the use of so seducing and dangerous an expedient." In practice, he relied on temporary bank loans in anticipation of established revenue to extricate the new Treasury from its inherited difficulties. The same deep-rooted association in the public mind of bills of credit or treasury notes with the excesses of paper money continued for a generation to discourage the use of negotiable instruments in connection with temporary borrowing. Not until the War of 1812 was recourse had to short-term obligations. A funded loan to cover the war deficit had met with disappointing public response, and Gallatin sought authority to issue treasury notes for the unsubscribed amount. In the congressional debate which preceded the passage of the act, the plan was opposed "as engrafting on our system of finances a new and untried measure," and many of the criticisms which the subsequent use of the device aroused were anticipated.[8] But the situation was deemed critical and the act was passed and ap-

[8] Bayley, pp. 343–5.

proved on June 30, 1812. It empowered the President to issue at par one-year, five and two-fifths per cent. treasury notes to an amount not exceeding $5,000,000 in payment for supplies, in settlement of debts and to provide needed funds. Such notes were to be receivable in discharge of duties and taxes and in payment for public lands. The full amount authorized was issued. Six months later, February 25, 1813, a further issue of $5,000,000 was authorized for the purpose of covering the part of the current war deficit not met by the $16,000,000 loan of 1813. In March, 1814, there was a further issue of $10,000,000; in December, 1814, an authorization of $10,500,000 of which $8,314,400 was issued, and in February, 1815, an authorization of $25,000,000 of which $4,969,400 was issued in $100 denominations and $3,392,994 in smaller denominations.[9] There were thus in all five series of treasury notes authorized in 1812-15, aggregating $60,500,000, of which $36,680,794 was actually issued.

(B) The second large occasion for the issue of treasury notes was the succession of annual deficits which followed the panic of 1837.[10] The expenditures of the government had doubled in three years and there had been actual shrinkage in revenue. Between 1837 and 1843 there was only one year in which the Treasury was not face to face with a considerable deficit. The financial requirement was aggravated by monetary stringency. The

[9] Knox, pp. 38-9; Bayley, 349-50.
[10] Knox, chap. vi; Dewey, chap. x.

charter of the Bank of the United States had expired in 1836 and in 1837 there was general suspension. To meet the monetary demand as well as to satisfy the financial deficit the issue of one-year treasury notes, bearing not more than six per cent. interest and in denominations not exceeding $50, was authorized in 1837 to an amount not exceeding $10,000,000. The notes were to be issued in optional payment of public creditors and were receivable for all taxes and dues. As issued a large part of the notes bore a merely nominal rate of interest and were speedily presented in payment of taxes, to that extent accomplishing the fiscal and failing the monetary purpose in view.

The precedent established, recourse was had from 1837 to 1844 under authority of eight successive acts to no less than thirteen emissions — issues and reissues — to an aggregate amount of $47,002,900. Used primarily to meet financial exigencies in a period when neither bond issues nor bank loans were regarded as feasible, the expedient continued to serve in presence of a disordered and inelastic currency system a monetary need as distinct from a fiscal requirement. So employed, the treasury note was the center of much of the political controversy and constitutional debate which raged in these troubled years over the specie circular, the independent treasury system, the organization of a national bank, and the emission of paper money. The outcome was to vindicate the fiscal usefulness and to discredit anew the monetary effectiveness of the treasury note. By the close of the period the distinction had been clearly made that: "the

issue of notes payable on demand, out of funds then on hand, and in the treasury, is totally different in principle from the issue of notes promising to pay one year after date, intended to supply a present deficit in the treasury, and to be reimbursed thereafter out of accruing revenue," and that "To issue notes for circulation, payable on demand, under cover of the authority to borrow money in the form of treasury notes, is deemed an abuse of authority which ought to be corrected." [11]

(C) The declaration of war against Mexico on May 13, 1846, followed close upon the tariff reduction of that year.[12] To provide for the anticipated deficit, Congress authorized an issue of treasury notes and, alternately as to any part, an issue of six per cent. stock — the amount of both issues not to exceed $10,000,000. The notes were identical with the 1837-42 issues, the same plates even being used in printing them. They were emitted in denominations of not less than $50, reissuable within the term of maturity. The notes might be tendered in direct payment of such public creditors as would receive them, or might be used by the Treasury in borrowing money to be so applied.

The Treasury's needs continuing, the amount of notes originally authorized was increased six months later by $5,000,000, and a second issue of $23,000,000 of one or two year notes was authorized, subject to reissue and receivable in payment of all public dues. The notes might be called upon sixty days notice and were fundable into six

[11] Knox, pp. 54-61. [12] Knox, chap. vii.

per cent. bonds. In 1846–8 there were issued, under the provisions of the act of July 22, 1846, $7,687,-800, and under the provisions of the act of January 28, 1847, including reissues, $26,122,100 — all bearing interest at the rate of five and two-fifths or six per cent. with the exception of $1,766,450 of the earlier issue which bore a nominal rate of one mill per cent. per annum.

(D) The crisis of 1857 and the suspension of specie payments swiftly changed a comfortable treasury balance into the prospect of a disturbing deficit.[13] The established revenues would under normal conditions have been sufficient to meet expenditures; but the suspension of the banks had been followed by sharp contraction of business. Much dutiable merchandise had been placed in bond and the flow of current income rapidly dwindled. To tide over the interval, Congress on December 23, 1857, at the request of the Secretary of the Treasury, authorized the issue of one-year treasury notes "for such sum as the exigencies of the public service might require" not to exceed at any time the amount of $20,000,000.[14] The notes were to be issued at par in denominations of not less than $100, with interest at not more than six per cent. They were to be receivable for all public dues and when redeemed might be reissued within the period of final maturity. The issue was to be emitted in two installments — the first, to the amount of $6,-000,000 forthwith; the remainder, by public tender "at their par value, for specie to the bidders offer-

[13] Knox, pp. 70–1. [14] Bayley, p. 368.

ing to take them at the lowest rate of interest, not exceeding 6 per cent." The entire sum authorized was issued, and the amount of issues and reissues in all was $52,778,900 at rates of interest from three to six per cent., emitted in denominations of not less than $100.[15]

(E) To discharge the treasury notes, issued in 1857 and still outstanding, Congress on June 22, 1860, authorized a loan of $21,000,000 in ten-twenty years bonds.[16] A third of the issue had barely been placed before the rumbling of the coming storm convulsed the money market and the remainder of the offering was withdrawn. In lieu Congress in December, 1860, authorized an issue of one-year treasury notes in denominations of not less than $50, to an aggregate amount not exceeding $10,000,000. The notes were to bear six per cent. interest; but the Secretary of the Treasury was empowered if necessary to issue them after advertisement at such rates of interest as might be offered by the lowest responsible bidders. Only some $70,000 were actually issued at six per cent., the remainder commanding from seven to twelve per cent. Nearly one-half of the $10,000,000 emitted bore twelve per cent., and bids were actually received but declined at rates ranging from fifteen to thirty-six per cent. In the congressional debate which preceded the passage of the enabling act an unsuccessful attempt was made to pledge the proceeds of the public land sales for the specific redemption of the notes, and an endeavor to reduce the minimum de-

[15] Knox, p. 71.

[16] Knox, chap. viii.

nomination from $100 to $20 resulted in a compromise at $50.

A month later the act of March 2, 1861 — the first of the emergency revenue measures [17] enacted on the eve of a great war to supply a depleted treasury — authorized the President of the United States to float a $10,000,000 loan or, if satisfactory terms were not obtainable, to issue treasury notes in lieu thereof, and also to substitute treasury notes for the whole or any part of the money which he was authorized to borrow by previous acts.[18] Such notes were to bear six per cent. interest, to be emitted in denominations of not less than $50 and to mature in two years unless called for earlier redemption. Notes were actually issued to the amount of $35,364,450, of which $22,468,100 was redeemable in two years and $12,896,350 sixty days after date.

With the administration of Secretary Chase the older form of short-term obligations which had proved so ineffective in the first year of the war was abandoned for two related expedients: (a) interest bearing obligations of somewhat longer term as the three-years seven and three-tenths per cent. notes, and (b) non-interest bearing demand notes.[19] Both of these measures underwent development. The longer term notes became, with improvement in the investment market, funded loans. The non-interest bearing demand notes degenerated into the

[17] Knox, chap. ix.
[18] Bayley, p. 371.
[19] Mitchell, " A History of the Greenbacks " (Chicago, 1903), part I.

legal tender issues. Not only did the historic treasury note develop into new instruments but the actual term, treasury note, came to be associated with one of these newer devices instead of remaining identified with the original expedient. Thereafter, when recourse was had to the use of short-term interest bearing obligations, the title treasury note was associated in public usage with legal tender demand notes and the term certificate of indebtedness was used in lieu of the old phrase.

In February, 1862, Secretary Chase, embarrassed by the pressure of floating indebtedness, then variously estimated at from $80,000,000 to $180,000,000, sought and obtained authority from Congress to issue to creditors who might desire to receive them certificates of indebtedness bearing six per cent. interest and payable in one year or earlier at the option of the Government. Substantial amounts were issued during the remaining three years of the war in payment of contractors' audited accounts and disbursing officers' checks: $50,000,000 in 1862; $157,000,000 in 1863; $169,000,000 in 1864, and $131,000,000 in 1865. When received they were used either as collateral for procuring bank loans or directly as a form of currency. Although circulating at a small discount they passed freely from hand to hand as current funds. The successive issues remained outstanding for the full term of their maturities, being then discharged from out of general revenue. At the end of the fiscal year 1866 only $26,400,000 of such certificates were outstanding and these were paid off in the next twelve months.

(F) No recourse was had to certificates of indebtedness from the Civil War to the revenue legislation of the Spanish-American War. The war revenue act of June 13, 1898, empowered the Secretary of the Treasury to issue certificates of indebtedness in denominations of $50 and multiples, bearing not more than three per cent. interest nor of more than one year maturity and limited to a total outstanding volume not exceeding $100,000,000. The obvious intention was that such short-term borrowing should meet the Treasury's extraordinary needs until the proceeds of war taxes and loans became available. As a matter of fact, the prompt issue and immediate success [20] of the war loan made it unnecessary to issue any of the certificates. The enabling act itself however remained upon the statute books conferring permissive authority upon the Secretary of the Treasury, and became eventually the nucleus of later authorization of short-term borrowing.

The panic of 1907 was the occasion of the final issue of certificates of indebtedness prior to the present war.[21] To relieve the acute monetary stringency, the Treasury transferred to the banks as public deposits all available funds, so that by the middle of November the available working balance had been reduced to approximately $5,000,000, making impossible further relief from this quarter. Efforts were now directed to induce the banks — "hampered by the scarcity of bonds and the rapid

[20] *Commercial and Financial Chronicle*, July 16, 1898.

[21] Report of Secretary of Treasury, 1908, p. 21; Report of Treasurer of United States, 1908, p. 154.

advance in their price"—to take out additional note circulation.[22] The Treasury on November 17, 1907, announced that bids would be received for an issue of $50,000,000 Panama Canal bonds under the act of June 28, 1902, and $100,000,000 three per cent. certificates of indebtedness under the act of June 13, 1898—both to be available for note circulation. The Treasury further announced its intention of permitting 90 per cent. of the proceeds of the bonds and 75 per cent. of the proceeds of the certificates to remain as public deposits in depositary banks.

The mere announcement brought the desired relief. It was ultimately found necessary to issue only $24,631,980 of the Panama bonds and $15,436,500 of the certificates of indebtedness. The certificates were almost wholly absorbed by the banks and were used for increasing circulation or for securing public deposits. Of the total amount issued, there were purchased by the Treasury at par and interest $1,250,000 on March 3, 1908, and $250,000 on September 14, 1908. The remaining $13,936,500 were called for redemption at maturity on November 20, 1910.[23]

In summary, it appears that of the six occasions upon which, prior to the present war, the Treasury made use of negotiable short-term debt obligations, the first four—1812-15, 1837-42, 1846, 1857—developed from inability to sell long term bonds in

[22] Report of Secretary of Treasury, 1908, p. 21.

[23] Report of Treasurer of United States, 1908, p. 152, 1909, p. 137.

sufficient amount to meet pressing requirements in periods of impending war or acute monetary disturbance unrelieved by adequate banking facilities. Whatever effectiveness such expedients possessed was largely a consequence of their use not as formal borrowing devices, but — after the manner of the continental bills of credit — as fiat emissions for direct payment of public accounts. Whether the fiscal exigency was in each case desperate enough to justify such a policy with its reasonably certain accompaniments, if sufficiently pursued, of inflation and depreciation is a problem which at this late day, with scanty statistical evidence, practically defies solution. So utilized, the short-term obligation became an insecure make-shift, inviting return of the very consequences which the framers of the constitution in the fullness of experience had sought to avert by discountenancing the emission of bills of credit. At best, it served as a last resort of a strained treasury unsupported by adequate credit agencies.

The short-term issues of the Civil War were largely a result of Secretary Chase's opposition to long-term bonds, heightened by his reluctance to adjust the interest yield of funded loans to the prevailing rate of the money market. In fiscal effect the use of such "temporary obligations falling due in the midst of civil conflict" has been fairly described as "a source of double vexation to the treasury department, which was obliged to conduct a series of refunding operations, and at the same time to go into the money market to borrow ever increasing sums for a war which apparently would

never end." In economic effect, their service as currency "expanded prices, and increased the speculation and extravagance always incident to war." [24]

There remain the authorization of 1898 and the emission of 1907. Of these the issue of 1907 was again monetary rather than fiscal in character — a consequence less of a depleted treasury than of a rigid bond secured circulation, whereby an acutely strained credit market sought relief in otherwise unnecessary debt creation. Only in the Spanish-American War authorization of 1898 did the Treasury contemplate a short time negotiable obligation in the manner familiar to fiscal practice and sanctioned by fiscal theory — anticipation of the proceeds of a funded loan designed to meet extraordinary expenditures.

[24] Dewey, "Financial History of the United States," p. 317.

THE PRESENT

II

THE PRESENT

IN the financing of the present war, the United States has made use of negotiable short-term debt obligations, under the designation of "Treasury certificates of indebtedness," from the preparatory measures taken before the actual declaration of hostilities, through the first anniversary of entry into the struggle, up to the present time of writing [November 1, 1918]. There have been in this period, thirty-one issues of certificates offered by the Treasury through the Federal Reserve Banks for general subscription by banks and individuals. [1] In addition the Federal Reserve Banks have on various occasions made temporary loans to the Treasury, "to avoid constant withdrawals of government funds on deposit with depositary banks," by the direct purchase of certificates of indebtedness payable within a few days and bearing interest at from two to four per cent.[2] In the following [3]

[1] See below p. 28 as to the ante-bellum issue of March 31, 1917, herein included.

[2] "Fourth Annual Report of the Federal Reserve Board" (Washington, 1918), pp. 265, 277.

[3] In a note on "Certificates of Indebtedness in our War Financing" in *The Journal of Political Economy*, November, 1918, the present writer has summarized the course of certificate borrowing down to June 1, 1918, in the manner of the present chapter.

table, the essential features of the thirty-one formal issues are summarized:

Series [4]	Date of Issue	Interest Rate	Date of Maturity	Nominal Amount
[1]	Mar. 31, 1917	2	June 29, 1917	$50,000,000
[2]	Apr. 25, 1917	3	June 30, 1917	268,205,000
[3]	May 10, 1917	3	July 17, 1917	200,000,000
[4]	May 25, 1917	3¼	July 30, 1917	200,000,000
[5]	June 8, 1917	3¼	July 30, 1917	200,000,000
[6]	Aug. 9, 1917	3½	Nov. 15, 1917	300,000,000
[7]	Aug. 28, 1917	3½	Nov. 30, 1917	250,000,000
[8]	Sept. 17, 1917	3½	Dec. 15, 1917	300,000,000
[9]	Sept. 26, 1917	4	Dec. 15, 1917	400,000,000
[10]	Oct. 18, 1917	4	Nov. 22, 1917	385,197,000
[11]	Oct. 24, 1917	4	Dec. 15, 1917	685,296,000
[12]	Nov. 30, 1917	4	June 25, 1918	691,872,000
[13]	Jan. 2, 1918	4	June 25, 1918	491,822,500
[14]	Jan. 22, 1918	4	Apr. 22, 1918	400,000,000
[15]	Feb. 8, 1918	4	May 9, 1918	500,000,000
[16]	Feb. 15, 1918	4	June 25, 1918	74,100,000
[17]	Feb. 27, 1918	4½	May 28, 1918	500,000,000
[18]	Mar. 15, 1918	4	June 25, 1918	110,962,000
[19]	Mar. 20, 1918	4½	June 18, 1918	543,032,500
[20]	Apr. 10, 1918	4½	July 9, 1918	551,226,500
[21]	Apr. 15, 1918	4	June 25, 1918	71,880,000
[22]	Apr. 22, 1918	4½	July 18, 1918	517,826,500
[23]	May 15, 1918	4	June 25, 1918	183,767,000
[24]	June 25, 1918	4½	Oct. 24, 1918	839,646,500
[25]	July 9, 1918	4½	Nov. 7, 1918	759,938,000
[26]	July 23, 1918	4½	Nov. 21, 1918	584,750,500
[27]	Aug. 6, 1918	4½	Dec. 5, 1918	575,706,500
[28]	Aug. 20, 1918	4	July 15, 1919	157,552,500 [5]
[29]	Sept. 3, 1918	4½	Jan. 2, 1919	639,493,000
[30]	Sept. 17, 1918	4½	Jan. 16, 1919	625,216,500
[31]	Oct. 1, 1918	4½	Jan. 30, 1919	641,069,000

[4] The bracketed numerals are used merely to distinguish the issues in the present study. As a matter of fact "Only a few of the issues had serial letters and numbers printed on the certificates, the other issues being without any serial designation." The certificates in anticipation of the Fourth Liberty Loan have been designated by the Treasury as Series IV, and the successive issues distinguished by serial letters.

[5] Up to the close of the issue on November 6, 1918.

In purpose the thirty-one series may be arranged in seven groups as follows:

Series	In anticipation of:	Nominal amount
(A) [1]	1917 Income Tax	$ 50,000,000
(B) [2] [3] [4] [5]	First Liberty Loan	868,205,000
(C) [6] [7] [8] [9] [10] [11]	Second Liberty Loan	2,320,493,000
(D) [12] [13] [16] [18] [21] [23]	1918 Income and Excess Profits Taxes	1,624,403,500
(E) [14] [15] [17] [19] [20] [22]	Third Liberty Loan	3,012,085,500
(F) [24] [25] [26] [27] [29] [30] [31]	Fourth Liberty Loan	4,659,820,000
(G) [28]	1919 Income and Excess Profits Taxes	157,552,500

The circumstances attending these successive issues may be briefly reviewed:

(A) The early entry of the United States into the war was foreshadowed in the recommendation of the Ways and Means Committee of the House of Representatives in the report accompanying the revenue bill of March 3, 1917, that inasmuch as "under the present system of taxation a considerable portion of the receipts are not due and payable until the last month of each fiscal year"— the existing authority of the Secretary of the Treasury to issue certificates of indebtedness with a view to anticipating public revenues should be enlarged. A little noticed section of the Payne-Aldrich tariff act of August 5, 1909, had reënacted the certificate of indebtedness provision of the Spanish War revenue act, with the maximum amount of such certificates which might at any time be outstanding increased from $100,000,000 to $200,000,000. As

passed the revenue act of March 3, 1917, empowered the Secretary of the Treasury to borrow from time to time "such sum or sums as, in his judgment, may be necessary to meet public expenditures, and to issue therefor certificates of indebtedness in such form and in such denominations as he may prescribe." The rate of interest to be paid might not exceed three per cent.; the period of maturity, one year; and the sum at any time outstanding, $300,000,000. The provision limiting the denomination of the certificates to a minimum of $50 present in the older acts of 1898 and 1909 — a curious reminder of the lapse of the certificate of indebtedness into a circulating bill of credit in times past — was omitted; but there seems no reason to suppose that this omission, fraught with hypothetical possibilities, had in view any other purpose than the wider discretion of the Secretary of the Treasury.

Under this authority, "in anticipation of the corporation and individual income taxes due in June, 1917," the Treasury on March 27, 1917, borrowed $50,000,000 from the twelve Federal Reserve Banks by an issue of two per cent., ninety days certificates of indebtedness. The operation was carried out by direct purchase on the part of the Banks as fiscal agents of the Government summoned to invest in short-term obligations issued in anticipation of revenue. The total amount subscribed was $66,650,000, of which $50,000,000 was actually allotted.[6]

[6] See *Commercial and Financial Chronicle*, March 31, 1917, p. 1209, for text of offering.

The certificates so acquired were paid for by the creation of government deposits in the form of credit accounts, and were held by the Federal Reserve Banks as investments until maturity.[7] In this respect the emission differed from all succeeding issues. It was neither distributed among the member banks nor made available for the remittance of Liberty Loan subscriptions nor for the payment of public dues, but figured as an extraordinary short-term loan made by the Treasury of its fiscal agents at a favorable rate in anticipation of established revenue. The Secretary of the Treasury could with propriety speak of the completed operation as affording " an additional demonstration of the usefulness of the new Reserve System to the country." [8]

(B) In announcing the over-subscription of the certificate issue of March 31, 1917, the Secretary of the Treasury intimated that an additional $50,000,000 of " these temporary certificates of indebtedness " might be issued before the end of the fiscal year — adding significantly that no statement could " be made about possible issues of Government bonds until further developments in the in-

[7] There was some criticism that the low interest yield of the certificates prevented the Federal Revenue Banks from disposing of the certificates to investors and thus impaired the liquid quality of the Banks' resources (*Commercial and Financial Chronicle*, March 31, 1917, p. 1210); but there is no evidence that the Federal Reserve Banks had at this time any such intention (see also Secretary of the Treasury's statement of April 20, 1917, in *Federal Reserve Bulletin,* May, 1917, pp. 341–2).

[8] *Federal Reserve Bulletin,* April, 1917, p. 240.

ternational situation."[9] In the succeeding fortnight history moved swiftly. On March 21, 1917, President Wilson had called Congress in special session two weeks earlier than originally proposed "to receive a communication concerning grave matters of national policy." On April 6, 1917, a joint resolution was passed by Congress declaring that a state of war with the Imperial German Government had been forced upon the United States.

In these weeks the policy of the Treasury with respect to the huge borrowings which were then immediately imminent may be supposed to have crystallized. No information is available as to the manner in which the determination was reached, and we are left in doubt in how far the counsels of the Federal Reserve Board, intent upon avoiding monetary strain, prevailed; in how far the fiscal experiences of the Allies were considered; in how far an independent program, inspired by the sheer course of events, was formulated. Certainly the procedure adopted can fairly be described in the light of our own financial history as a new policy, approximating from the outset the European and notably the English rather than the American system of funding and tending with the progress of borrowing to conform more and more closely to English practice — then still in vogue but destined soon to be abandoned.

The characteristic feature of this new policy was the supply of treasury funds by the systematic use of certificates of indebtedness for short term bor-

[9] *Commercial and Financial Chronicle,* March 31, 1918, p. 1209.

rowings, primarily from the member banks of the Federal Reserve System but to the extent possible from investors — such floating indebtedness being liquidated by the issue at intervals of long-term funded loans. The certificate of indebtedness became thus, not like the contemplated issue of the Spanish-American War, an initial expedient to put the Treasury in funds until the proceeds of newly authorized loans and taxes became available, but an habitual borrowing device analogous to but not identical with the treasury bill of English finance. Giving way periodically to a funding or liquidating loan, the certificate of indebtedness was resorted to promptly thereafter in renewal of the borrowing cycle.

There was no formal statement as to the larger purpose which the certificate of indebtedness was designed to serve. The report of the Ways and Means Committee accompanying the introduction of the Liberty Loan bill in the House of Representatives merely set forth that:

> "In view of the fact that a very large portion of the taxes now levied and proposed to be levied at a future date will be payable yearly, and therefore will not be capable of yielding a continual flow of revenue into the Treasury, your committee deem it advisable to recommend the authorization of the issuance of $2,000,000,000 worth of certificates of indebtedness, payable within one year, to the end that the Treasury may at all times have ample means of securing funds to meet the immediate needs of the Government."

This intention was repeated in the announcement of the Secretary of the Treasury on April 20, 1917, that:

"As soon as the war loan bill becomes a law he intends to sell such amounts of Treasury certificates of indebtedness as may be necessary to meet the requirements of the Treasury and the war situation pending the sale of Government bonds"—[for which] "about 60 days" [would probably be required].[10]

The First Liberty Loan act of April 24, 1917, authorized the issue of certificates of indebtedness so foreshadowed upon a scale commensurate with the titanic financing then inaugurated. The Secretary of the Treasury was empowered "to borrow from time to time, on the credit of the United States, for the purpose of this act and to meet public expenditures authorized by law such sum or sums as, in his judgment may be necessary" by the issue of certificates of indebtedness bearing not more than three and a half per cent. interest nor of more than one year maturity — up to an amount of $2,000,000,000 at any one time outstanding. Such certificates were not to bear the circulation privilege but were exempt from all taxation other than estate or inheritance taxes. The provisions of the act as to the custody of the funds so borrowed were all-important: (a) the Secretary of the Treasury was authorized to deposit in banks and trust companies duly qualified as government depositaries the proceeds arising from the sale of certificates and bonds to amounts not exceeding, in the case of each depositary, the sum invested by it or withdrawn from it for investment in certificates and bonds; and (b) the reserve requirements as to demand deposits imposed by the Federal Reserve Act were waived as

[10] *Federal Reserve Bulletin,* May, 1917, p. 342.

to deposits of government funds in qualified depositaries.[11]

The provisions of the enabling act were supplemented by administrative action. The Federal Reserve Banks "as holders of the liquid cash resources of the nation" were not to absorb such certificates as direct investments, as in the case of the preceding issue, but to act as distributors in placing the certificates among the member banks and trust companies in their respective districts. To the end of "relieving the money market from the strain of heavy loan subscription payments," member banks and financial institutions generally were authorized and urged to employ certificates in payment of Liberty Loan subscriptions made by them directly or in remitting the funds for subscriptions made through them as agents. Finally, the Secretary of the Treasury announced that "in the financial operations in which the Government is about to engage it will be his purpose to adjust receipts and disbursements in such a way that as far as possible money paid in will be promptly returned to the market."[12]

Between April 25 and June 8 the Treasury issued four series of certificates of indebtedness at fortnightly intervals. The first two series bore three per cent. interest; the others, three and a quarter. The nominal amount of each series was $200,000,000; but over-subscription of the first issue led to actual allotment of $268,205,000, after which the amount offered in each issue was not exceeded in allotment. The maturities were sixty

[11] See p. 126, below.
[12] *Federal Reserve Bulletin,* May, 1917, p. 342.

days, with a shorter term for the issue of June 8. In absorption, the response of the interior was substantial and eventually nearly one-half of the issue was placed outside of the New York District. Efforts were made by the Treasury to encourage a quasi-investment purchase of certificates by individuals and corporations in anticipation of loan subscriptions; but it is not apparent that a large measure of success attended the endeavor.

Payment for these issues was made by subscribing banks in current funds. In interesting contrast to the different procedure subsequently adopted, this mode of cash payment was at the time regarded as one of the important advantages of certificate borrowing:

> "By the adoption of this policy of gradual issue of short-term certificates the Treasury receives a regular flow of funds which are transferred to it from the banks and individuals who take up the certificates, the moneys thus coming in being steadily applied to the requirements of the Government in various directions. As the certificates are receivable in payment for subscriptions to the long-term bonds when prepared, it is thus possible to draw off from the market a portion of the available funds, which are then expended and returned to commercial channels practically as received, thereby avoiding considerable withdrawals at any one time and making the loan operation a gradual process of withdrawal of funds which are subsequently funded into the new bonds. Subscriptions for the certificates naturally come primarily from the banks, which are thus given a short-term investment for their spare funds while they are sure of reimbursements out of the proceeds of the long-term securities, within 60 days or less." [13]

[13] *Federal Reserve Bulletin,* June, 1917, p. 424.

The nominal aggregate of the four issues in anticipation of the First Liberty Loan was $868,205,000. This amount remained outstanding until June 30, when the issue of April 25 matured leaving the nominal amount outstanding $600,000,000. During the succeeding two months, the Treasury's needs were supplied by the unexpectedly large overpayment in settlement of the early Liberty Loan subscription installments. On July 30, 1917, the last of the outstanding certificates matured and were paid off, leaving the Treasury free from certificate indebtedness.

(C) The interval was brief. Ten days later, on August 9, 1917, short-term borrowing, nominally in anticipation of a Second Liberty Loan, was resumed. The intention of the Treasury as to the near future was set forth in detail:

"It is expected that certificates of indebtedness will be issued from time to time somewhat in advance of the immediate requirements of the United States. The primary object of this is to avoid the financial stress which would result from the concentration of the payments for a great bond issue upon a single day (which can not be avoided wholly by provision for payment by installments as a great proportion of subscribers prefer to make payment in full on one day as a matter of convenience.)" [14]

Although the avoidance of monetary strain in connection with the loan flotation was thus emphasized as the purpose of the renewed certificate borrowing, it is probable that the provision of additional funds could not in any event have been

[14] Treasury statement of August 19, 1917, in *Federal Reserve Bulletin*, September, 1917, p. 664.

long delayed. Early in August the Treasury balance had fallen below $300,000,000, with substantial requirements in sight and no extraordinary revenue available.

In the six weeks elapsing until the passage of the Second Liberty Loan act, the Treasury allotted three issues of certificates: $300,000,000 on August 9, payable November 15; $250,000,000 on August 28, payable November 30; and $300,000,000 on September 17, payable on December 15. The interest rate of the new issues was raised to three and a half per cent., corresponding to the yield of the First Liberty Loan. The certificates were specifically made acceptable at par and interest if tendered in payment of the first installment on account of the Second Liberty Loan, and each series was subject to redemption as a whole upon ten days notice on or after the date set for the payment of such first installment.

In mode of issue, the emission of August 9 was identical with those that had preceded. Payments for certificates allotted were made by subscribing banks to the Federal Reserve Banks in cash or current exchange, and the proceeds were thereafter redeposited with subscribing banks duly qualified as government depositaries. In connection with the flotation of the First Liberty Loan, the Treasury "to avoid, even temporarily, a derangement of the money market" had on May 16, 1917, authorized banks and trust companies having payments to make on account of subscriptions for $100,000 or more bonds, and duly qualified as public depositaries to make payment upon such

subscription on June 28, 1917, as to any amounts not paid in Treasury certificates of indebtedness "by credit on their books to the account of the Treasurer of the United States." This procedure had been foreshadowed in the mode of payment used by the Federal Reserve Banks for the ante-bellum certificate issue of March 31, and had been actually employed with results of the utmost significance in connection with the overpayment of the installment of June 28, 1917, on account of the First Liberty Loan.

The device of permissive payment "by credit" was apparently extended by administrative tolerance of the Treasury, to settlement for certificates of indebtedness acquired by or through incorporated banks and trust companies after August 28, 1917 — that is, with respect to the issue of August 29, 1917, and succeeding issues. Thenceforth qualified depositaries were permitted to make payment "by credit" for certificates allotted to them for themselves and their customers up to the amount for which each had qualified. Subscribing banks not fully qualified as depositaries were required to make payment for certificates by cash and current exchange; but in such instances the Treasury undertook to re-deposit unexpended proceeds in proportion to subscriptions, as promptly as depositary qualification was completed.

This modification in procedure — invested with possibilities and indeed attended with results both fiscal and economic of very great importance — was effected without public discussion and, it may be ventured, without public comprehension. The Treasury announcement as to the issue of August

28, 1917, contained no mention of payment by credit, nor did the immediate succeeding comment of the Federal Reserve Board refer thereto.[15] The plan simply appears to have become generally operative by the notification of the several Federal Reserve Banks to member banks subscribing to the issue of August 28, 1917, in much the manner employed by the Federal Reserve Bank of Richmond that: "The qualified depositaries will be permitted to make payment by credit for certificates allotted, up to the amount for which each has qualified, when so notified by this bank."[16] In the succeeding issue of September 17, 1917, this authorization was embodied in the Treasury's formal announcement of the offering:

> "In connection with the foregoing offering of the third series of certificates of indebtedness, preparatory to the second issue of the Liberty Loan, the Secretary of the Treasury announces that qualified depositaries will be permitted to make payment by credit for certificates allotted to them for themselves and their customers up to the amount for which each shall have qualified when so noti-

[15] *Federal Reserve Bulletin*, September, 1917, pp. 651–2, 664.

[16] Circular letter of August 22, 1917. In other Districts the transition was more gradual. As to the Federal Reserve Bank of New York we are told that "arrangements were made beginning with the issue of April 25 to redeposit as large a portion as possible of the funds paid in. This, in effect, amounted to a payment for the certificates by credit on the books of the subscribing banks, and in later issues this was the practice actually pursued." (Fourth Annual Report of the Federal Reserve Board, p. 277.) The Federal Reserve Bank of Boston, by authorization of the Treasury Department, redeposited in designated depositary banks the amounts subscribed by such banks to the certificate issues of May 10 and June 8, 1917. "These redeposits were made on the same day as payments were made, and therefore are similar to payments by credit."

fied by Federal Reserve bank, but if qualification is not completed by Sept. 17, payment must be made in ordinary way, in which case the unexpended proceeds of the certificates will be re-deposited as promptly as qualification can be completed. Full details of the procedure for qualifying depositaries and all matters in such connection may be obtained from the Federal Reserve banks, fiscal agents of the United States." [17]

On September 24, 1917, the Second Liberty Loan bill became law. It provided that in addition to the other obligations therein authorized the Secretary of the Treasury might borrow " for the purpose of this act and to meet public expenditures authorized by law, such sum or sums as, in his judgment, may be necessary " by the issue of certificates of indebtedness, at not less than par nor for more than one year term subject to prior redemption. There were three distinctive provisions as to the issues so authorized: (a) no maximum limit was put upon the rate of interest to be paid, the Secretary of the Treasury being empowered to borrow by the issue of certificates " in such form or forms and subject to such terms or conditions and such rate or rates of interest as he may prescribe "; (b) the total amount of such certificates, which might at any time be outstanding including those authorized in connection with the First Liberty Loan, was increased from $2,000,000,000 to $4,000,000,000; (c) the tax exemption enjoyed by the new certificates, as of the new bonds, was made inapplicable not only to estate or inheritance taxes, but to graduated additional income taxes (" surtaxes ") and to excess

[17] *Commercial and Financial Chronicle,* September 8, 1917, p. 948.

profits and war profits taxes,— all of this with the qualification that any interest from certificate holdings not in excess of $5000 should be exempt from the latter group of taxes.

The short-term borrowing of the Treasury was resumed under this authorization and in conformity with its terms. Three additional series of certificates were issued, somewhat less regular in interval and less uniform in nominal amount than the preceding issues. Of these the first — offered the day after the Loan act had become law — was for $400,000,000, dated September 26, and payable December 15, on which date the third installment of the bond subscription payments became due. The other two issues were emitted a month later in quick succession — October 18 to mature November 22, and October 24 to mature December 15, respectively. Instead of being limited to a specified amount, the issue of October 18 was offered "to an amount of not less than $300,000,000" and there was actually allotted $385,197,000. The issue of October 24 was offered without limitation of any kind, and the amount actually placed in the five days in which subscriptions were received reached the large sum of $685,296,000 — obviating the necessity of further temporary borrowing before the proceeds of the Second Liberty Loan became available.

It thus appears that in the three and one-half months intervening between the approximate exhaustion of the proceeds of the First Liberty Loan early in August up to the first availability of funds from the Second Liberty Loan in mid-November the extraordinary requirements of the Treasury

were met by short-term borrowings in the form of six successive certificates of indebtedness to a nominal aggregate of $2,320,493,000. Of these the first three were under the authority conferred by the First Liberty Loan act, and the last three under that conferred by the Second Liberty Loan act. A less evident but practically more important distinction is that after the first issue (August 9, 1917), the method of payment by credit came into increasing use by subscribing banks in settlement of certificates allotted.

(D) Despite a huge available balance consequent upon the heavy over-payment of the first installment on account of the Second Liberty Loan, the Treasury resumed short-term borrowings in the last week of November, 1917. The expedient then adopted was a further use of certificates of indebtedness, this time in anticipation of the proceeds of war income and excess profits taxes payable in June, 1918.

Authorization for this procedure had been conferred by a provision[18] of the war revenue act of October 3, 1917, empowering collectors of internal revenue to receive at par and accrued interest certificates of indebtedness issued under the First Liberty Loan act in payment of income and excess profits taxes for "such time and under such regulations as the Commissioner of Internal Revenue, with the approval of the Secretary of the Treasury, shall prescribe."

The reason formally assigned for this tax-antici-

[18] Section 1010.

pation issue was "to relieve any possible congestion or disturbance of the money market such as might be caused by the payment of taxes due between June 15 and June 25, estimated to amount to over $2,000,000,000."[19] But such precautionary measure of relief was not imperative seven months in advance of the assumed occasion, the less in that important loan operations involving heavy requisition upon the nation's credit supply were inevitable in the interval. It is more likely that at the time definite provision was made for the plan, neither the volume nor the composition of the over-payment of the loan installment of November 20, 1917, was fully anticipated, and that the Treasury desired to be in comfortable state for meeting the $1,385,296,000 certificates maturing in mid-December.

On November 20, 1917, the Treasury gave notice that subscriptions, at par and accrued interest, would be received through the Federal Reserve Banks for "a limited amount" of four per cent. Treasury certificates of indebtedness, dated November 30, 1917, and maturing June 25, 1918, and issued in denominations of $500, $1000, $10,000 and $100,000. Certificates of indebtedness then outstanding might be tendered at par with adjustment of accrued interest in payment of the new issue. The new certificates were receivable at par and accrued interest at or before maturity, in payment of income and excess profits taxes, when payable, but were not available in payment of Liberty bonds or on account of bond subscriptions. The

[19] *Federal Reserve Bulletin,* December, 1917, p. 918.

tax exemption privileges of the certificates were the same as those of other issues, with the further advantage that a ruling of the Commissioner of Internal Revenue permitted certificates owned by corporations to be included in "invested capital" in the calculation of the excess profits tax.[20]

The offering was extraordinarily successful. On November 30, 1917, when the books were closed, subscriptions had reached some $691,000,000. The Secretary of the Treasury spoke with satisfaction of the response, and expressed the hope as to the future that "the Federal Reserve Banks and banks and trust companies throughout the country will keep interest alive in issues of this character. Their advantages are obvious to tax-payers and investors and they are a great aid to the financial operations of the Government. In this way the work which has been done in connection with the first issues will not be lost even though the demand for the certificates at this time has been greater than could be immediately gratified." [21]

The sharp reduction in the Treasury's resources upon the payment of maturing certificate issues on December 15, 1917, encouraged further recourse to the same device, and on December 17, 1917, the Treasury announced a new offering of certificates in anticipation of tax receipts of unspecified amount, to be dated January 2, 1918, and to mature June 25, 1918, and in all other respects identical

[20] *Commercial and Financial Chronicle,* December 22, 1917, p. 2405; December 29, 1917, p. 2497.

[21] Treasury announcement of November 30, 1917, in *Baltimore Sun,* December 1, 1917.

with the issue of November 30, 1917. Response to the offering, although slower than in the case of the first issue, was hearty. The subscription books remained open for some weeks, overlapping the certificate offering of January 22 in anticipation of the Third Liberty Loan, and the total allotment was $491,822,500. The Treasury offered further series of tax anticipation certificates on February 15, March 15, April 15, May 15, all due on June 25, 1918. The arrangement thus took practically the form of continuous "over the counter" sale of certificates to prospective taxpayers, with a maximum of one month's accrued interest.

The efforts of the Treasury and the activities of the Federal Reserve Banks were but moderately successful in securing a large absorption of the tax anticipation certificates after the issues of November 30, 1917 and January 2, 1918. Of the issue of May 15, 1918, the considerable sum of $183,767,000 was taken; but a substantial part of this was in immediate preparation for the payment of the income and excess profits taxes become due on June 15, 1918. None of the other three issues approximated this amount. The total volume of tax anticipation certificates issued was $1,624,403,500, as compared with an actual yield of the 1918 income and excess profits taxes in the fiscal year ended June 30, 1918, of $2,839,083,585.

(E) Early in January, 1918, it had become apparent that receipts from tax anticipation certificates of indebtedness would be insufficient to meet the Treasury's requirements and that early recourse

must be had to some more productive source. This took the form of certificate borrowing in anticipation of a Third Liberty Loan, then definitely contemplated but not yet formally authorized nor even specifically determined. On January 17, 1918, the Treasury offered the first issue of certificates of this kind, to the amount of $400,000,000, dated January 22, 1918, payable April 22, 1918 and bearing four per cent. interest.

Three weeks later, the Treasury announced a comprehensive plan for short-term borrowing in anticipation of the Third Liberty Loan — the actual flotation of which it was desired to postpone "until conditions will insure a wide distribution of the bonds throughout the country." [22] Instead of issues of certificates of indebtedness at irregular intervals and of unequal amounts, it was proposed to offer at fortnightly intervals beginning February 8, 1918, six series of $500,000,000 each of not more than ninety days maturity. As theretofore, the certificates were to be distributed by the Federal Reserve Banks and to be absorbed by the banks of the country — national, state and trust companies; non-member as well as member — as short-term investments in their own behalf and for their customers. Moreover instead of relying on voluntary optional response, the Treasury urged uniform proportionate contribution from every national bank, state bank and trust company, in the form of one per cent. of its gross resources to be set aside weekly for investment in the certificates.

[22] Text of announcement in *Federal Reserve Bulletin*, March, 1918, p. 161.

The total resources of the 25,180 national banks, state banks and trust companies reporting to the Comptroller of the Currency aggregated on June 20, 1917, $30,850,527,556. So that the allocation of one per cent. weekly for the purchase of certificates of indebtedness would realize, conservatively, the Treasury's program.[23]

On February 6, 1918, the Treasury offered through the Federal Reserve Banks the first of such issues — $500,000,000 certificates of indebtedness to mature on May 9, 1918, and bearing four per cent. interest from February 8, 1918. In connection with this offer the Secretary of the Treasury addressed a telegram to all banks and trust companies, inviting each as a matter of patriotic duty, to set aside each week approximately one per cent. of its gross receipts and place that amount at the disposal of the government by investing it in certificates of indebtedness as might from time to time be offered. With fortnightly issues, it would follow "if each bank will do its share that as a maximum 10 per cent. of the gross resources of the banks, or approximately $3,000,000,000, will be raised between now and the next Liberty Loan, provided that it is necessary to call upon the banks to that extent."[24]

The appeal for such "a co-operative effort of the banks" was effective to the extent that the number of subscribers to the issue of February 8 was double the number to the preceding issue of January 22. But in amount, the subscriptions from the country

[23] "Report of Comptroller of Currency," 1917, p. 108.
[24] *Federal Reserve Bulletin*, March, 1918, p. 161.

at large was characterized by the Treasury as "distinctly disappointing." Only two districts, New York and Kansas City, exceeded their allotment, and but one other, Minneapolis, equaled its quota. The entire issue of $500,000,000 was eventually subscribed, but this result was only made possible by the twelfth hour action of the larger banks in financial centers, notably New York, in taking more than their respective quotas.[25]

In preparation for the succeeding issue of February 22, the Treasury redoubled its efforts. The distribution of quotas of the several Federal Reserve Districts was modified; possible misapprehension as to the extent of each bank's expected participation was clarified; the minimum denomination of the certificates was reduced from $1,000 to $500 and the interest rate of the certificates was increased to four and one half per cent. — with the assurance that there would be no further increase in connection with certificate issues in anticipation of the Third Liberty Loan. A telegram was sent by the Treasury to every bank and trust company which had not responded to the offering of February 8, and this solicitation was followed up through the organization of the Federal Reserve Banks, with the intention that "the number of subscribers for this coming issue shall be again doubled, and approximately every bank and trust company in the United States shall be upon the roll." The Treasury announcement of the offering of the issue concluded with the appeal: "This is a patriotic duty which is set for the banks and trust companies

[25] *Federal Reserve Bulletin,* March, 1918, pp. 153–4, 162.

of the Nation. I hope that they will meet the requirements of the situation." [26]

Thanks to these efforts the number of subscribers to the issue was materially increased and the full amount of the offering was taken. The number of subscriptions by Federal Reserve Districts for the issue, as compared with the preceding issues of January 22, and February 8, was as follows: [27]

	Jan. 22	Feb. 8	Feb. 27
Boston	212	471	554
New York	275	766	1,192
Philadelphia	415	800	730
Cleveland	770	1,200	1,396
Richmond	158	479	558
Atlanta	216	755	717
Chicago	910	2,424	2,832
St. Louis	1,654	1,034	1,401
Minneapolis	375	1,193	1,436
Kansas City	515	1,547	1,653
Dallas	480	951	955
San Francisco	384	930	1,048
Total	6,364	12,550	14,472

Three further issues of certificates were offered in accordance with the Treasury's program and substantially oversubscribed: on March 20, maturing June 18 to the amount of $543,032,500; on April 10, maturing July 9 to the amount of $551,226,500; and on April 22, maturing July 18 to the amount of $517,826,500. The final issue of April 22, 1918, was in part a refunding operation of the issue of January 22, 1918, due on that date, certificates of the January issues being taken in pay-

[26] *Federal Reserve Bulletin,* March, 1918, p. 162.
[27] *Federal Reserve Bulletin,* April, 1918, p. 251.

ment of the April issue, with adjustment of accrued interest.

The results of the Treasury's efforts to secure more general absorption of the certificates had been summed up after the offering of the issue of March 20 as follows:

> "An especially interesting aspect of the operation has been the success attained in securing a wider distribution of the certificates among the banks of the interior, which during the period preceding the Second Liberty Loan had hardly sustained their full share of the burden, leaving the bulk of the load to be carried by institutions on the eastern seaboard. The banks and trust companies throughout the country are now definitely enlisted in the task of carrying through the financial operations of the Government, and a correspondingly greater degree of strength is thereby imparted to the financial machinery." [28]

This estimate was reasonably justified by the results of the remaining issues; even though the number of participating banks may not have shown the same progressive increase. The number of subscriptions for the last three issues of the series have not been made public, but it is unlikely that it was much in excess of that for the issue of February 27. The relative distribution of the six issues of

[28] *Federal Reserve Bulletin,* April, 1918, p. 251. To encourage proportionate subscriptions from all banks, certain of the Federal Reserve Banks published in brochure form, after each certificate issue of the Third and Fourth Liberty Loans, "Lists of Subscribers," with the respective quotas and amounts subscribed, for the confidential use of the banks. Of the "Lists" which the writer has been permitted to examine — New York, Boston, Cleveland and San Francisco — that of Cleveland, with its accompanying "quota book" is especially notable for the fullness and value — practical and scientific — of its statistical material.

certificates in anticipation of the Third Liberty Loan among the financial institutions of the Federal Reserve Districts is shown in the following table:[29]

	Jan. 22	Feb. 8	Feb. 27	Mar. 20	Apr. 10	Apr. 22
		[per centum]				
Treasury	..	0.6	0.7	0.7	..	.3
Boston	5.0	5.8	7.1	9.8	7.2	7.0
New York	52.4	48.3	34.6	35.6	39.1	43.0
Philadelphia	5.6	6.0	6.6	6.9	6.8	6.7
Cleveland	6.5	6.8	8.9	8.9	8.3	7.5
Richmond	1.8	2.4	3.6	3.0	2.0	2.1
Atlanta	2.4	2.5	3.0	2.9	3.1	2.1
Chicago	7.6	8.5	11.8	11.8	11.9	12.2
St. Louis	4.5	4.0	5.1	4.2	3.8	4.9
Minneapolis	2.7	3.0	3.4	2.9	2.8	2.9
Kansas City	3.0	4.3	4.8	4.8	4.5	3.9
Dallas	3.3	2.8	3.8	2.7	3.0	2.5
San Francisco...	5.3	5.0	6.7	5.7	7.1	4.5

In all important particulars, other than amount, interest rate and maturity, the certificate issues in anticipation of the Third Liberty Loan corresponded with the issues in anticipation of the Second Liberty Loan. The issue of April 22, 1918, was like the preceding issues specifically redeemable after ten days public notice at par and accrued interest. But to stimulate the use of the issue in payment of loan subscriptions, the certificates whether or not called for redemption were made acceptable at par with an adjustment of accrued interest to May 9, 1918, if tendered on May 4, 1918, in payment on the subscription price then payable of bonds of the Third Liberty Loan subscribed for by and allotted to holders of such certificates. If not called

[29] Computed from table showing actual allotments in *Federal Reserve Bulletin*, May, 1918, p. 359.

for redemption and not so used the certificates might be tendered on July 18, 1918, when due, in payment on the subscription price of bonds, in accordance with the terms of the offering.

The certificate borrowings in anticipation of the Third Liberty Loan were made under authority conferred by the First and Second Liberty Loan acts. On April 4, 1918, the Third Liberty Loan bill was approved. The maximum amount of certificates that might at any time be outstanding was therein increased from $4,000,000,000 to $8,000,000,000, and provision was made that certificates of indebtedness might be issued payable, principal and interest, in foreign money, and that depositaries in foreign countries might be designated for the receipt of all or any part of the proceeds.

In the accompanying administrative announcement of the Treasury the installment dates for payment upon bond subscriptions were fixed on May 4–9 (5 per cent.), May 28 (20 per cent.), July 18 (35 per cent.) and August 15 (40 per cent.). Payment in full might be made or completed at any installment date, and payment of any installment or payment in full might be made in certificates of indebtedness except those of the issues maturing April 22, and June 25.[30] As to the use of certificates in payment, an important change in accustomed procedure appeared in the provision that "Qualified depositary banks and trust companies may make payment by credit upon the subscriptions of themselves and their customers but only to the

[30] The certificates maturing June 25 were of the six series issued in anticipation of 1918 income and excess profits taxes.

extent that they cannot make payment in Treasury certificates of indebtedness." [31]

No information is available as to the extent to which this restriction may have compelled the tender of certificates in payment of the first loan installment more than would otherwise have occurred; but on the whole it does not seem likely that any considerable influence was so exerted. Up to May 28, 1918, only $823,332,600 certificates were used in such payment — less than the nominal aggregates of the certificate issues maturing May 9 and 28. The remaining three certificate issues aggregating $1,612,085,500 matured in June 18–July 18, and were in part tendered in later Loan installment payments, in part redeemed from out the general fund of the Treasury replenished by (a) the Loan installments, (b) the receipts from the 1918 income and excess profits taxes and (c) the proceeds of the early certificate issues in anticipation of the Fourth Liberty Loan.

(F) The almost immediate resumption of anticipatory borrowing after the Third Liberty Loan flotation may be regarded as dictated by the Treasury's policy of a heavy working balance. The preliminary announcement was accompanied by no uncertainty as to the instrumentality to be employed: [32]

"Experience is again showing the desirability of this method of anticipating the proceeds of loans, and suggests

[31] See text in *Commercial and Financial Chronicle*, April 6, 1918, p. 1402.

[32] *Federal Reserve Bulletin*, June, 1918, p. 485.

that when carefully employed it has the effect of producing a steady flow of available free funds into the hands of the Government, there to be as steadily used and disbursed for current expenses on account of salaries and commodities."

The actual procedure was a further development of the systematic use of the credit making power of the banks in connection with certificate issues in anticipation of the Fourth Liberty Loan. On June 12, 1918, the Secretary of the Treasury addressed a new letter to every bank and trust company in the United States setting forth that the expenditures of the Government, as nearly as could then be estimated, would require the sale of certificates of indebtedness up to November 1, 1918, to an aggregate amount approximately of $6,000,000,000. This would involve the issue every two weeks of $750,000,000 of certificates substantially similar in character to those issued prior to the Third Liberty Loan except that they were to be of various maturities not exceeding four months. The first of such issues was to be dated June 25 maturing October 24 with interest at four and a half per cent., and similar issues were expected to be made on Tuesday of every other week thereafter.

The change from optional participation on the part of individual banks to a manner of moral pressure, noticed in connection with the issues anticipatory of the Third Liberty Loan, now took the form almost of administrative compulsion. The Federal Reserve Banks were to advise all banks and trust companies in their respective districts of the amount of certificates which they were to take of

each issue in pursuance of this program, this amount being estimated as "roughly to equal two and one-half per cent. of the gross resources of each bank and trust company for every period of two weeks or a total of five per cent. monthly"— as compared with a total of four per cent. monthly for the Third Liberty Loan issues.

Announcement [33] was also made of the contemplated issue "at a convenient and favorable period during the summer" of certificates in anticipation of the June, 1919, income and excess profits taxes "of an amount yet to be determined perhaps $2,-000,000,000" of suitable maturities for tax payments. To the extent that such tax anticipation certificates were sold, an equivalent reduction in the amounts of the fortnightly loan anticipation issues or of the total number of such offerings might be expected. All banks were enjoined to "make arrangements promptly of such a character that no delay will be experienced in the sale and distribution of Treasury Certificates of both issues," to the end that "no patriotic banker in the United States will fail to do his full meed of essential service to his country and to her noble defenders." [34]

The program was carried out without important

[33] Text in *Commercial and Financial Chronicle*, June 22, 1918, p. 2607.

[34] For the promptness and vigor with which this appeal was spread see, for example, the letter sent under date of August 26, 1918, to the banks in the State of Utah by the banking commissioner of that State transmitting resolutions passed by the Salt Lake Clearing House Association, wherein each member institution formally agreed to purchase the full allotment of certificates as and when offered (*Federal Reserve Bulletin*, October, 1918, pp. 936–7).

change, other than that in consequence of the earlier flotation of the Fourth Liberty Loan certificate borrowing came to an end a month sooner than had been contemplated. Between June 25 and October 1, there were issued seven series of four and a half per cent. certificates, each of four months maturity but identical in all other respects with the earlier issues. In two particulars there was minor but interesting variation from the Treasury's original plan. There was no issue on the fortnightly date August 20, the first of the new series of tax anticipation issues being then offered in seeming lieu thereof. Moreover, only the first two issues were offered in the amount originally contemplated, $750,000,000. The third, fourth and seventh issues were of $500,000,000 each and the fifth and sixth, $600,000,000 each. In each instance there was acceptance of oversubscription as to these less amounts, ranging from $89,646,500 in the first issue, to $141,069,000 in the last, resulting in an actual allotment for the seven issues of $4,659,820,000 as compared with a contemplated aggregate for such issues of $5,250,000,000.

A possible reduction in the number and volume of the loan anticipation issues had been foreshadowed in the Treasury's first announcement in the event of heavy response to the tax anticipation offering. But the tax anticipation certificates were not issued until August 20, and eventually only some $150,000,000 were taken. In announcing the reduced minimum amount of the third bi-weekly offering on July 20, 1918, the Treasury explained that this was in consequence of the over-subscrip-

tion of the first two issues and the increased returns from war savings certificates and from income and excess profits taxes, but added:[35] "This, however, is only a minimum amount and those institutions which have made arrangements to subscribe their share on the basis of an offering of $750,000,000 will be free to do so." In addition to the specific reasons set forth it is probable that the reduction was in a measure due to the modified policy of the Treasury with respect to its working balance, noticeable after mid-August.

(G) On August 16, 1918, the Secretary of the Treasury, in accordance with the announced program, offered for subscription at par and accrued interest, the "tax series of 1919" certificates of indebtedness. The issue was dated August 20, 1918, bore interest at the rate of four per cent. and matured July 15, 1919. To avoid the necessity of successive issues or the inconvenient accumulation of accrued interest, provision was made for the bimonthly payment of interest. In all other technical particulars the issue corresponded with the 1918 tax anticipation series. The offering was made without limit of amount; but the Treasury reserved as usual the right to reject any subscription and to allot less than the amount of certificates applied for and to close the subscription at any time without notice. As fiscal agents of the United States, Federal Reserve Banks were to receive subscriptions and to make allotment in full in the order of the receipt of applications until further notice. As be-

[35] *Federal Reserve Bulletin*, August, 1918, p. 699.

fore, qualified depositaries were permitted to make payment by credit for certificates allotted to them for themselves and their customers up to an amount for which each should have qualified in excess of existing deposits. Certificates of the four series issued in anticipation of the Fourth Liberty Loan then outstanding were in manner similar to the 1918 procedure made acceptable at par with an adjustment of accrued interest in payment for any certificates of the tax series then offered which should be subscribed for and allotted not later than August 30, 1918. To the extent that this privilege was availed of the new tax series obviously again served as a refunding issue of the earlier maturing loan anticipation series.

The offering was pressed with characteristic vigor. Under date of August 16, 1918, a circular letter was addressed by the Secretary of the Treasury apparently to every income and excess profits tax-payer in the country, urging purchase of the certificates both on the score of personal advantage and patriotic service, and concluding with the vigorous appeal:

"The taxpayer who buys these certificates contributes in many ways to help in our great problem of winning the war. First, he pays the Government money before it is due, receiving interest from the Government meanwhile; second, he practices economy and thrift and thereby releases goods and services to the Government which are greatly needed for winning the war; third, he saves himself trouble and money and relieves the banking institutions, to which he would otherwise have to turn, from the pressure which his failure to prepare in advance for the payment of his taxes would involve.

"The man who buys Treasury certificates to the amount of the taxes he will have to pay, and thereby anticipates their payment. will do a wise and helpful thing not only for himself but for his country, and will contribute in a most definite and patriotic way to the triumph of America in her mortal combat with the enemies of liberty and democracy — the Kaiser's legions of lust and license — and share in the new glory of America's vindicated ideals of justice and humanity."

The result was gravely disappointing. Between August 20 and November 6 the total amount of such certificates sold was only $157,552,500. Whatever other reasons may have operated, the low interest rate of the series doubtless played a considerable part in checking sales. With the money market "pegged" at six per cent. and the four and a half per cent. loan anticipation certificates in direct competition there was little warrant for expecting a large absorption of the four per cent. tax series.[36]

There have thus been emitted, in conjunction with our war borrowing, thirty-one issues of certificates of indebtedness to an aggregate amount of $12,692,559,500. Of these the initial issue was nominally in anticipation of the proceeds of the 1917 income tax; six subsequent issues were in anticipation of the proceeds of the 1918 income and excess profits taxes, and one in similar anticipation of 1919 taxes — the latter two groups however partaking of important characteristics of the loan an-

[36] On November 6, 1918, the Treasury discontinued the sale of the four per cent. tax anticipation certificates and offered in lieu thereof a four and a half per cent. series bearing date of November 7, 1918, and maturing March 15, 1919.

ticipation issues. The remaining twenty-three issues of an aggregate amount of $10,860,603,500 were emitted in anticipation successively of the proceeds of the First, Second, Third and Fourth Liberty Loans.

Such anticipatory borrowings have formed a large proportion of the nominal amounts of the Liberty Loans. The volume of certificates outstanding at the several dates upon which the first installment on account of bond subscriptions became payable, and the ratio of such volume to the amount of the corresponding loan have been approximately as follows:

Liberty Loan	Date of 1st Installment	Amount of Loan	Certificates Issued	Ratio of Certificates to Loan
First	June 28, '17	$2,000,000,000	$ 868,205,000	43.4
Second	Nov. 15, '17	3,808,766,150	2,320,493,000	60.9
Third	May 4, '18	4,170,019,650	2,612,085,500	62.6
Fourth	Oct. 19, '18	6,989,047,000	4,665,320,000	66.7

In other words, the Liberty Loans have been to an increasing extent required to discharge short-term indebtedness contracted by certificate borrowing in anticipation of the flotations.

The certificates have been taken and held in the main by the financial institutions of the country — national banks, state banks and trust companies.[37] The Federal Reserve Banks, with whom was placed

[37] An investigation made by the Savings Bank Section of the American Bankers' Association showed that out of 405 such institutions in the six New England States 167 savings banks having 60 per cent. of the total assets of such banks had invested 3.2 per cent. of their resources in certificates of indebtedness. In the five Eastern States, out of 196 such institutions 101 savings banks having more than 60 per cent. of the total

the entire ante-bellum issue of March 31, 1917, subsequently withdrew from the rôle of direct investors and confined themselves to the functions of distribution and remittance, with only such temporary investment service as was made necessary by administrative convenience, by the insufficiency of the banks' subscriptions, and by the desirability of aiding wider distribution of certificates among the banks. The provision in the war revenue act of October 3, 1917, effective December 1, 1917, imposing a tax of two cents per $100 or any fractional part thereof on promissory notes was subsequently held to include collateral notes tendered for discount to Federal Reserve Banks. This penalty upon banking operations in conjunction with certificate borrowing and loan flotations was avoided by the use of "resale" or "repurchase agreements," whereby the Federal Reserve Banks acquired and held temporarily Liberty bonds and certificates of indebtedness until taken over by subscribing banks. By the enactment of the War Finance Corporation bill on April 5, 1918, promissory bills secured by United States war obligations were no longer subject to stamp taxes, and Federal Reserve Banks instead of temporarily acquiring such securities under "repurchase agreements" reverted to the practice in vogue before December 1, 1917, of accepting from the member banks United States war obligations as collateral for promissory notes.[38]

assets had invested 4.7 per cent. of their resources in the same manner (*Federal Reserve Bulletin,* October, 1918, p. 953).

[38] *Federal Reserve Bulletin,* May, 1918, p. 360.

Of the certificates acquired by the banks, much the largest quota has been for their own account, only a minor part being apparently taken in behalf of customers. This applies to the loan anticipation certificates; with respect to the tax anticipation issues the conditions have probably been the reverse. No precise tabulations are available as to the several amounts of the loan anticipation certificates taken and held by the banks as compared with those taken and held by investors. It is possible, however, to form some opinion as to this from the condition of the national banks on the several "call" dates; from the condition of "member banks in leading cities" reporting weekly after December 7, 1917, to the Federal Reserve Board; and from the condition of member banks other than national banks on December 31, 1917, similarly reported. A somewhat involved and necessarily free computation from such data — attempted by the present writer and elsewhere set forth in detail [39] — leads to the highly tentative conclusion that of the certificate issues prior to January 1, 1918, the banks took for their own account slightly less than seven-eighths and that of the issues emitted thereafter up to April 19, 1918 when large amounts of tax anticipation certificates had been sold "over the counter" and when progress had been made in securing a wider distribution and absorption of the loan anticipation issues — the banks took something more than three-fifths.[40]

[39] "Holdings by the Banks of Treasury Certificates" in *Federal Reserve Bulletin,* September, 1918, pp. 845–7.

[40] Some modification of these proportions is suggested by

In the absorption of the certificates for themselves and their customers, the banks of the New York District have taken the leading part and this tendency has continued with the progress of the Treasury's short-term borrowing. Of the $868,205,000 certificates issued in anticipation of the First Liberty Loan, the banks of the New York District took $459,962,000 or 53 per cent.; and of the $2,320,493,000, issued in anticipation of the Second Liberty Loan, $1,467,543,000 or 63 per cent. was so taken. Of the final issue of this series — (11) $685,296,000 bearing date of October 24, 1917 — the New York banks took no less than $543,683,000 or 79 per cent., and even of the next succeeding issue — the first of the series of 1918 tax anticipation issues — (12) $691,872,000 bearing date of November 30, 1917 — $494,070,500 or 72 per cent. was so taken. With the systematic efforts of the Treasury to establish a wider subscription basis for

the results of valuable inquiries, along the lines laid down above, made by Mr. Frederick H. Curtiss, Chairman of the Federal Reserve Bank of Boston, as to the absorption of certificates of indebtedness in the New England District. It appears that the assumption made in the foregoing computation that certificates have been taken by the trust companies in the same proportion as by the national banks does not hold, at least in this District, with respect to more recent certificate issues. To the certificates issued in anticipation of the Third Liberty Loan the national banks in the District subscribed 11.94 per cent. of their total resources, while trust companies took only 7.13 per cent. To the certificates in anticipation of the Fourth Liberty Loan the national banks subscribed 15.33 per cent. of their resources and the trust companies only 11.97 per cent. It appears further that of the certificates sold to banks and trust companies in the District between June 25, and August 31, 1918, there were retained by such institutions up to the latter date, approximately 41.9 per cent. of the amount taken.

the certificate issues in anticipation of the Third and Fourth Liberty Loans, the relative amounts allotted to the New York District became less. Of the \$3,012,085,500 certificates issued in anticipation of the Third Loan only \$1,255,308,000 or 42 per cent., and of the \$4,659,820,000 in anticipation of the Fourth only \$1,680,989,000 or 36 per cent. were taken by New York.

The essential rôle in the New York District was of course played by the New York City banks. With respect to the issues in anticipation of the Second Liberty Loan "Of the 1076 banks (not including savings banks) outside of New York City, 308 purchased certificates of indebtedness, but of these only about one-half were what may be termed regular purchasers. The others participated in only one or two of the issues." [41] How successful were the succeeding efforts in this, as in other Districts, to enlist banking participation appears if the above figures be compared with the response of banks in the New York District to the first six certificate issues (June 25, July 9, July 23, August 6, September 3, and September 17, 1918) in anticipation of the Fourth Liberty Loan. Of the 1220 national banks, state banks, trust companies and savings banks in the District 613 subscribed to the first issue, 817 to the second, 781 to the third, 830 to the fourth, 907 to the fifth and 885 to the sixth. Of the 621 national banks, the number of subscribers rose from 363 to the first issue, to 516 to the fifth; of the 225 state banks, from 108 to the first

[41] "Fourth Annual Report of the Federal Reserve Board," p. 277.

to 177 to the fifth; of the 196 trust companies, from 123 to the first to 168 to the fifth; of the 178 savings banks, from 19 to the first to 50 to the fourth. On the other hand the number of direct private subscribers declined from 70 to the first issue to 44 to the second, to 27 to the third and fourth, respectively, and to 26 to the sixth.[42]

To a small extent in the case of the certificate issues in anticipation of the First Liberty Loan and to a large and increasing extent in the case of succeeding issues, payment for certificates was made by subscribing banks by credit. Full data as to the relative importance of such credit payments are available to the writer only for the certificates taken by subscribing banks in the Federal Reserve District of Boston; but it is unlikely that the figures for the country at large are notably different than for this particular district:

Issue of 1917	Total Issued in Boston District (000 omitted)	Paid by Credit (000 omitted)	Per cent. Paid by Credit
Mar. 29	$3,000	.....	...
Apr. 25	13,800	.....	...
May 1	2,000	.....	...
May 10	12,167	$5,450	.447
May 25	11,200	.....	...
June 8	18,200	3,652	.200
Aug. 9	19,400	6,500	.335
Aug. 28	15,140	4,593	.303
Sept. 17	12,171	5,195	.426
Sept. 26	22,174	12,245	.552
Oct. 18	30,149	21,349	.708
Oct. 24	33,010	27,590	.835
Nov. 30	20,921	20,090	.960

42 "List of Subscribers in Second Federal Reserve District," sixth edition, September 27, 1918.

Issue of 1918	Total Issued in Boston District (000 omitted)	Paid by Credit	Per cent. Paid by Credit
Jan. 2	$16,163	$13,219	.817
Jan. 22	20,025	17,587	.878
Feb. 8	29,134	24,870	.853
Feb. 15	8,790	7,535	.857
Feb. 27	35,369	30,059	.849
Mar. 15	6,735	4,864	.722
Mar. 20	53,690	49,264	.917
Apr. 10	39,731	36,084	.908
Apr. 15	5,220	3,250	.622
Apr. 22	36,468	27,143	.744
May 15	24,578	22,238	.905
June 25	64,590	58,567	.907
July 9	56,273	51,935	.923
July 23	48,267	45,173	.936
Aug. 6	49,509	46,104	.931
Sept. 3	57,424	52,887	.921
Sept. 17	54,710	51,107	.935
Oct. 1	50,378	45,019	.893

The first phase of our war borrowing — the recurrent issue of loan anticipation certificates of indebtedness — has thus resolved itself very largely into an extension to the Treasury of deposit credits in the form of government deposits, by and through financial institutions qualified as special depositaries. The second phase of the borrowing process has been the periodic flotation of Liberty Loans into which the anticipatory certificates have been funded or out of the proceeds of which the certificates have been extinguished on or before maturity. Hypothetically, the simplest procedure would have been for the outstanding certificates to have been tendered by the banks in payment of the Loan subscriptions, leaving the banks upon the completion of the operation in possession of long-term bonds instead of

short-term certificates. This method was prudently rejected by the Treasury as tending to defeat the desired ends of keeping the banking resources of the country in so far as possible liquid, and of securing the widest popular absorption of the bonds.[43]

The actual procedure has been for each loan flotation to take the form of an intensive popular campaign in which bonds were subscribed by individuals through banks and by banks on their own behalf, such subscriptions being forwarded to the Treasury through the Federal Reserve Banks acting as the fiscal agents of the Treasury. In due course, allotments have been made by the Treasury through the Federal Reserve Banks to the subscribing banks for the amounts taken in their own behalf and for their clients. Individual subscribers have made payment for bonds through their banks by drawing upon existing deposit accounts, by creating new loans and deposit credits and drawing directly or indirectly thereon, and by tendering cash items — withdrawn (unless taken from hoards) from circulation or from savings or from other banks but coming ultimately from the liquid resources of the banks, that is, from cash in vault in the first instances and from Federal Reserve notes obtained by rediscount thereafter. In turn, subscribing banks have made payment, over-payment or payment in full through the Federal Reserve Banks for bonds allotted to them for themselves and for their customers, in three forms — by tender of certificates, by credit, by cash items. These modes of payment have figured in the heavily over-paid first

[43] *Federal Reserve Bulletin,* April, 1918, p. 251.

installments of the Four Liberty Loans in the following proportions:

	First [per centum]	Second	Third	Fourth
Part of Loan paid on first installment	73	73	77	86[44]
Composition of first installment payment:				
Certificates	38	17	26	29
Credit	27	53	47	49
Cash	35	30	27	22

A small use of cash and certificates and a heavy use of credit in payment of bond subscriptions have thus marked the successive Liberty Loan flotations. As to cash, payments have been made by interior banks by drafts upon the reserve banks, and by the reserve banks by drafts upon their reserve balances with Federal Reserve Banks — this resulting in turn in a heavy demand for discounts from member-banks and through them from non-member banks, for the restoration of depleted reserves.

As to credit, the banks have followed the procedure elsewhere described — creating in the special depositaries new or additional government deposits to the extent that payments have been made in this manner. Over and above the two limitations operative in the case of credit payments for certificates,— extent of qualification as government depositaries and capacity of banking resources to meet subsequent withdrawals of government deposits — a third limitation has figured in the restrictions framed and to a limited extent imposed by

[44] Total payments to December 19, 1918.

the Treasury as to the relative amount permitted of such credit payment.

Both as to the total subscription payments and, more important, as to the aggregate volume of certificates at the time outstanding, certificates of indebtedness have been used to a relatively minor extent in the banks' payments for bond subscriptions. In the flotation of the First Liberty Loan, 64 per cent. of the then outstanding and available certificates was employed in the payments made on the first installment date; in the Second Liberty Loan only 20 per cent. was so tendered, in the Third Liberty Loan 32 per cent. was used, and in the Fourth Liberty Loan some 37 per cent.[45]:

Liberty Loan	Loan anticipation Certificates outstanding	Certificates used in first installment payment	Per Centum
First	$ 868,205,000	$554,500,000	64
Second	2,320,495,000	469,000,000	20
Third	2,612,085,500	823,332,600	32
Fourth	4,659,820,000	1,738,960,950	37

Reasonable allowance made for certificates held by subscribing banks in excess of their subscriptions, for certificates bought by individuals, corporations and non-subscribing banks for investment purposes, and for certificates used in later installment payments — it still appears true that in effecting settlement for Liberty Loan subscriptions the banks of the country elected and were permitted to make large use of payment by credit and to retain a substantial amount of their certificates as short-

[45] To December 19, 1918.

term investments. On the part of the banks a considerable advantage resulted in the margin of profit between the interest yield of retained certificates and the lower rate paid upon government deposits established by credit. On the part of the Treasury, there appeared an unreal addition to the net balance through the non-redemption of such part of the anticipatory certificates of indebtedness. Of direct fiscal significance, the collateral effects of this procedure in relation to the money market and the expansion of credit have been perhaps of even greater importance.

THE TREASURY

III

THE TREASURY

SHORT-TERM borrowing is an accredited expedient of war financing. The Treasury must be put in ready command of large funds immediately upon the declaration of hostilities; and for the considerable time elapsing before sources of extraordinary revenue — war taxes and funded loans — become productive there is likely to be need of anticipatory borrowing. The excesses to be avoided are (1) undue reliance upon temporary loans in lieu of definitive revenue, with the possibility of embarrassing refunding operations at perhaps critical intervals; and (2) entry upon a policy of short-term borrowing with insufficient banking machinery, with the danger of descent to bills of credit and fiat notes. These conclusions may fairly be described as in conformity with accepted fiscal theory and as realized in familiar fiscal practice.

As employed by the United States in the present war, short-term obligations in the form of certificates of indebtedness have served a larger purpose. They have indeed been used in the traditional way, at the outset and to a very limited extent, to bridge over the initial interval until war loans and war taxes should become productive. But much beyond this, certificates of indebtedness have been continu-

ously employed thereafter to keep the Treasury in funds for war expenditure, by issue in anticipation of the proceeds of funded loans and extraordinary taxes. In short, the war has been largely financed by resort to short-term borrowings, periodically liquidated from the proceeds of long-term loans and to a less extent from the proceeds of war taxes.

Assuming that certificates of indebtedness are a valid device for effecting the initial borrowing incident to war financing, it remains to inquire whether the larger and continuous use to which the certificates have been put has been justified by direct fiscal result. In succeeding chapters examination will be made of the collateral results which have attended such use, in relation to the business world and to general well being.

With respect to the direct part played by certificates of indebtedness in our war financing, the course of Treasury operations from the period just before our entry into the war up to the present time may be distinguished into thirteen periods, as follows:

Period	Date	Treasury Operations
	1917	
1.	March 31–April 21	certificate issue in anticipation of 1917 income taxes
2.	April 25–June 8	certificate issues in anticipation of First Liberty Loan
3.	June 15–June 30	First Liberty Loan
4.	June 30–August 9	reliance on net proceeds of First Liberty Loan
5.	August 9–October 24	certificate issues in anticipation of Second Liberty Loan

Period	Date	Treasury Operations
	1917	
6.	October 27–November 20	Second Liberty Loan
7.	November 20–January 2	reliance on net proceeds of Second Liberty Loan; certificate issues in anticipation of 1918 income and excess profits taxes
	1918	
8.	January 2–April 22	certificate issues in anticipation of Third Liberty Loan
9.	May 4–May 28	Third Liberty Loan
10.	May 28–June 25	reliance on net proceeds of Third Liberty Loan
11.	June 25–October 1	certificate issues in anticipation of Fourth Liberty Loan; certificate issue in anticipation of 1919 income and excess profits taxes
12.	October 19–October 24	Fourth Liberty Loan
13.	[October 24–December 5]	reliance on net proceeds of Fourth Liberty Loan

These thirteen periods may obviously be arranged, after an ante-bellum prelude, into four like cycles, each constituted of (a) a period of anticipatory certificate issues, (b) the flotation of a Liberty Loan and (c) the use of the net proceeds of the Loan:

Cycle	Certificate issues	Loan flotation	Use of loan proceeds
1917			
I	Apr. 25–June 8	June 15–June 30	June 30–Aug. 9
II	Aug. 9–Oct. 24	Oct. 27–Nov. 20	Nov. 20–Jan. 2
1918			
III	Jan. 2–Apr. 22	May 4–May 28	May 28–June 25
IV	June 25–Oct. 1	Oct. 19–Oct. 24	[Oct. 24–Dec. 5]

The actual experience of the Treasury in this cyclical movement may now be briefly reviewed. It is conveniently illustrated by the accompanying

graph showing the course of the daily "net balance" of the Treasury during the period under review.[1]

I

The three months that preceded our entry into the war were marked by a steady excess of disbursements over receipts. Starting with a net balance of $113,597,985 on January 2, 1917, the available funds of the Treasury declined practically without arrest. On February 23, 1917, there was for the first time an actual deficiency as compared with the authorized but undrawn amount to the credit of disbursing officers, and a week earlier the "daily statement" had begun to note that "the income tax, constituting a large part of the Government's revenue, is not collected until June," and to present the estimated amount payable at that time.

The Treasury balance touched its low point on March 15, 1917, at $52,951,594. For the next two weeks some restraint was apparently put upon disbursements; but on March 30 the nominal deficiency as against disbursing officers' credits was nearly $10,000,000, with a further immediate requirement of $25,000,000 in settlement of the Danish West Indies purchase. The provision of additional funds could not be delayed, and on March 31, 1917, the Treasury, in anticipation of the income taxes payable in June, borrowed $50,000,000 from the

[1] See frontispiece. I am indebted to Mr. Leopold Olceowski of Washington, D. C., for the transformation of my own rough graph into the finished chart.

Federal Reserve Banks by an issue of ninety days, two per cent. certificates of indebtedness.

In the first weeks of our actual participation in the war, the operations of the Treasury presented no unusual features. Disbursements — peace and war — mounted slowly, and the revenue trickling from war taxation showed signs of appreciable increase. The immediate problem loomed up from another quarter — credit advances to the Allies. The First Liberty Loan act had appropriated the huge sum of $3,000,000,000 nominally "out of any money in the Treasury not otherwise appropriated," but in reality from out of the proceeds of bonds and certificates therein authorized to be expended in so far as necessary in the purchase of the obligations of foreign governments. The requirements of Great Britain as to "dollar credits" were in particular urgent, and the necessities of France and Italy were only a degree less pressing.

On April 21, 1917, the Treasury offered the initial issue of certificates of indebtedness in anticipation of the First Liberty Loan, and immediately upon the passage of the Loan act three days later made allotments to the amount of $268,205,000. Of the proceeds $200,000,000 was at once advanced to the British Government and ten days later $125,000,000 to the French and Italian Governments, practically exhausting the certificate proceeds. In reflection, the Treasury balance moved from $83,617,332 on April 24 to $165,791,262 on May 2, dropping back thereafter to $54,757,198 on May 9 — the lowest point touched since the beginning of the calendar year.

By this time, however, the Treasury's plans for successive issues of certificates had definitely matured. At fortnightly intervals — May 10, May 25, June 8 — issues of $200,000,000 each were allotted. Of the $600,000,000 thus realized, no less than $560,000,000 was advanced to the Allies to June 29, 1917, leaving as the Treasury balance on that date $299,830,457, with $417,748,467 (June 9) and $149,682,891 (May 21) as the high and low points intervening. The funds derived from certificate borrowing were carried as a government deposit with the Federal Reserve Banks up to May 25, after which time the proceeds of certificate issues were redeposited with subscribing banks qualified as special depositaries and were remitted to the Federal Reserve Banks for disbursement as required for public expenditure.

Subscription lists to the First Liberty Loan closed on June 16, with an aggregate subscription of $3,035,226,850 and an actual allotment of $2,000,000,000. In the light of the Treasury's prospective requirements and the clear alternative of early resort to further certificate borrowing, it is incomprehensible that no part of the oversubscription should have been accepted. A preliminary payment of two per cent. was due on June 15 and a further installment of 18 per cent. on June 28, making the amount certainly available on that date $400,000,000. As a matter of fact there was heavy over-payment of the installment, the receipts on account of the Loan up to June 30 totalling $1,458,400,000 or 73 per cent. of the principal. The over-payment was not limited to any particular section. In the New York dis-

trict the ratio of payment to allotment was 92 per cent., as it also was in the St. Louis district. But in the Chicago district the lowest ratio was realized, 52 per cent.; and in the Boston district this was not greatly exceeded, 62 per cent.

The Treasury had made some effort to restrain overpayment by requiring large subscribers to give two weeks notice of their intention to pay in excess of the installment quota. But the amount and indeed the composition of the over-payment must have been known in advance with some exactness. As soon as possible after May 29 every subscribing bank desirous of being designated as a government depositary under the loan had been required to notify the Treasury as to: (a) the amount of bonds subscribed for by or through it; (b) the amount of payment to be made by it on or before June 28; (c) the amount of such payment to be made in cash; (d) the amount of such payment to be made in certificates.

The composition of this payment [2] — or over-payment — of the first installment at the Federal Reserve Banks is shown, approximately, in the subjoined table:

Cash	$518,300,000
Credit	385,600,000
Certificates	554,500,000
Total	$1,458,400,000

At the time the installment was due (June 28) there were outstanding $868,205,000 certificates issued in anticipation of the Loan. Assuming that

[2] *Federal Reserve Bulletin*, August, 1917, p. 578.

among the certificates tendered in payment of the first installment was the entire issue maturing June 30, 1917, there would have remained outstanding some $300,000,000 certificates retained by the banks or their customers as investments instead of being tendered in payment of bond subscriptions. To this extent the over-payment resulted in swelling the Treasury balance at the expense of leaving a corresponding amount of the certificates of indebtedness unliquidated. The significance of payment by credit, as distinct from cash or certificate payment, has to do with the general question of credit expansion consequent upon the certificate issues and will be examined in another connection.[3]

The fiscal results of the Loan flotation appeared in an abrupt increase of the Treasury balance from $299,830,457 on June 29 to $1,064,086,250 on June 30. Of this latter amount $305,743,526 was in the form of government deposits with the Federal Reserve Banks, and $714,841,218 with member banks qualified as special depositaries — this in turn being distinguished as $560,662,218 on account of Loan proceeds and $154,179,000 on account of certificates. Moreover the flotation had made possible by redemption at maturity and by acceptance in payment of the Loan installment the discharge of $626,196,844 certificates of indebtedness, reducing the amount then outstanding to some $260,000.000.

The issue of the "daily statement" of the Treasury was suspended on June 29, 1917, and not again renewed until July 23, 1917, on which date the statement for June 30, 1917, was first made public.

[3] Page 129, below.

This gap makes it impossible to follow in detail the operations of the Treasury in the weeks immediately following the Loan flotation. The consolidated statement for the interval (July 2 — July 23) shows, however, that during this period there was advanced to the Allies $375,000,000 and expended in ordinary disbursements $157,149,769.

By July 24, 1917, the Treasury balance stood at $494,394,365, of which $158,296,453 was in the Federal Reserve Banks and $320,264,871 in the special depositaries on account of Loan receipts. Three installments on account of the First Liberty Loan remained unpaid, nominally to the amount of $541,000,000; but of this only 20 per cent. was due on July 30, 30 per cent. being payable on August 15, and 30 per cent. on August 30. Revenue from taxation, even with the important schedules of the war tax act then in operation, offered no adequate relief. The 1917 income tax payments were largely completed by June 22, and the total ordinary receipts of the Treasury were actually less in July and August than in the months immediately following the declaration of war. On the other hand, a definite obligation lay immediately ahead in the maturity on July 30 of the outstanding parts of the certificate issues of May 25 and June 8, and between July 24 and August 14 the Treasury disbursed $265,648,579 for this purpose.

The graver problems of the Treasury had to do with the huge financial requirements of the Allies and with our own swiftly mounting expenditures for national defense. Of the two demands, the Allies' loans were the larger absolutely — beginning

with $410,432,295 in May, then recovering from an enforced restraint of $277,500,000 in June, to $452,500,000 in July, and to $478,000,000 in August. Our own expenditures, including interest on public debt, were less in outright amount but far more ominous in swift progression — $114,102,809 in May, $134,304,040 in June, $208,299,031 in July, $277,438,000 in August.[4] The last of the outstanding certificates had matured on July 30, and the Treasury was for the first time since the outbreak of the war entirely free from short-term obligations. But on the other hand the Treasury balance dropped below $300,000,000 early in August and substantial reinforcement became imperative, confirming the unwisdom of the Treasury's rejection of the entire over-subscribed part of the First Liberty Loan.

II

The second cycle of our war financing began on August 9, 1917. With a reduced Treasury balance at the outset, with the receipts from the First Liberty Loan exhausted, with a relatively inconsiderable revenue from war taxation, with Allies' requirements of undiminished magnitude, with our own expenditures for the national defense mounting progressively, with a second funded loan in contemplation and with no outstanding short-term obligations — the Treasury in pursuance of the policy now definitely established undertook to meet

[4] "Monthly Summary of Foreign Commerce of the United States," February, 1918, p. 93.

its needs by successive issues of certificates of indebtedness in anticipation of the proceeds of a prospective loan.

In the succeeding three months there were issued six series of certificates of an aggregate volume of $2,320,493,000, as above described. The intervals were approximately three weeks, with shorter periods preceding the issues of September 26 and October 24. The controlling policy seems to have been to keep the Treasury in funds above the three hundred million mark. Graphically, the course of the available balance represents a succession of six peaks, the high points indicating the receipts from certificate borrowing, the low points constituting a "pegged" minimum between $300,000,000 and $400,000,000.

The subscriptions to the Second Liberty Loan closed on October 27, 1917, with a total of $4,617,532,300 or approximately an over-subscription of 54 per cent. of the amount offered. One half of the oversubscription was accepted, making the total issue $3,808,766,150, and again presenting the question as to whether non-acceptance of any part of the over-subscription was under existing fiscal conditions justifiable. The provision for installment payment was 18 per cent. on November 15, 1917, (exclusive of 2 per cent. with application); 40 per cent. on December 15, 1917, and 40 per cent. on January 15, 1918. As in the case of the First Liberty Loan there was heavy overpayment in connection with the first installment and in almost identical proportion. Instead of the $761,753,230 due at that time, there was received by the Treasury

approximately, \$2,787,000,000 — constituting 73 per cent. of the total issue, as compared with 72.9 per cent. in the case of the First Liberty Loan.

The composition of the payment was as follows [5]:

Cash	\$ 841,000,000
Credit	1,477,000,000
Certificates	469,000,000
Total	\$2,787,000,000

The striking fact in the payment was the relatively small use of certificates and the correspondingly large use of credit. This was not apparently in consequence of any formal administrative restraint. Subscribers were permitted to make payment on November 15, 1917, in certificates of any maturity; whereas, for the later installments of December 15, 1917, and January 15, 1918, only the maturities of the corresponding dates were eligible.

The minor rôle played by certificates becomes even more evident if the composition of the first installment payments in the case of the two Liberty Loans be compared:

	First Loan (per centum)	Second Loan (per centum)
Certificates	38	17
Cash	35	30
Credit	27	53
	100	100

It thus appears that the relative parts of the two modes of payment underwent inverse change, the percentage of credit payment doubling and that of certificate payment being cut in half. The extent to

[5] *Federal Reserve Bulletin*, December, 1917, p. 919.

which certificates may be used in loan payment obviously stands in relation not only to the aggregate amount of the payment but also to the volume of outstanding certificates. The facts here were favorable to a larger use of certificates in November than in June. At the time of the First Liberty Loan there were outstanding $868,205,000 certificates or 43 per cent. of the loan principal; at the time of the Second Liberty Loan there were outstanding $2,320,493,000 or 61 per cent. of the loan principal. Moreover, if we make the reasonable assumption that the investment absorption of certificates does not proceed at equal pace with the volume emitted, but that the larger the amount outstanding the larger will be the amount of certificates taken by the banks on their own account, it would follow that a larger proportion of certificates should have been tendered by subscribing banks in connection with the Second than in connection with the First Liberty Loan.

As a matter of fact, assuming that the entire issue of $300,000,000 certificates maturing on November 15, 1917, were among the certificates tendered on that date on account of the Loan installment, there would have been only $169,000,000 of later maturities likewise tendered, as compared with a further outstanding amount of $1,851,000,000 that might have been but were actually not so used. To this extent the flotation again resulted in a plethora of available funds at the expense of an unliquidated floating debt.

The Treasury thus emerged from the Loan flotation with an embarrassing surplus and a large

volume of outstanding short-term obligations. On November 15, 1917, the Treasury balance stood at $801,983,785. A fortnight later[6] with the progress of the Loan flotation it had attained the height of $1,968,484,725, and on November 30, 1917, it was still at $1,837,419,886 — despite the redemption of the October 18, 1917, issue of certificates ($385,197,000) maturing November 22, 1917, and the August 28, 1917, issue ($250,000,000) maturing November 30, 1917. On the other hand the certificate issues of September 17, September 26, and October 24, 1917, of a nominal aggregate of $1,385,296,000 were due on December 15, 1917.

Two courses were now open to the Treasury in meeting this combined problem of surplus funds and of maturing short-term obligations. The one was to conserve the Treasury balance for current disbursements and to rely on further borrowings to meet the maturing certificate issues. The other was to use surplus funds to redeem outstanding certificate issues before maturity, and to provide for future expenditures by new short-term borrowings. The procedure followed was in the main the second course: two issues of certificates were called for redemption before maturity, and provision was made for further issues of certificates.

The reason assigned for earlier redemption was the danger of disturbance in the money market by the heavy withdrawal of funds that must otherwise have occurred on December 15, 1917. Certainly, a further advantage was the reduction of the swollen Treasury balance. On November 22, 1917, the Sec-

[6] November 23, 1917.

retary of the Treasury called the issue of September 17, 1917, ($300,000,000) for redemption on December 6, 1917, and the issue of September 26, 1917, ($400,000,000) for redemption on December 11, 1917 — both issues otherwise maturing on December 15, 1917. The last remaining issue in anticipation of the Second Liberty Loan, that of October 24, 1917, to the amount of $685,296,000, was not redeemed until maturity on December 15, 1917, the transaction then being aided by the receipt of $597,614,026 as the second installment on account of the Loan.

In the surfeit of its feast, the Treasury yet faced the menace of a famine. Seemingly ample as were its available funds after the payment of the installment of November 20, 1917, the Treasury balance was approximately only some $300,000,000 in excess of the certificates of indebtedness maturing within the succeeding three weeks. The unpaid installments of the Second Liberty Loan were nominally $1,022,000,000; but probably one-half of this could not be counted upon as available before the third installment date on January 15, 1918. As against these unpaid installments further issues of certificates could not readily be used; another Liberty Loan was not in such immediate contemplation as to justify anticipatory borrowings at this time, and the revenue flowing from taxation and war savings certificates was obviously inadequate.

On November 20, 1917, the Treasury invited subscriptions to the first series of certificates issued in anticipation of the war income and excess profits taxes, payable in June, 1918, and $691,872,000 were

allotted. This procedure was repeated a month later in a further series dated January 2, 1918, the subscriptions to which aggregated $491,822,500.

The immediate effect was to aggravate the Treasury plethora for a season. The net balance had receded from the high point $1,968,484,725 on November 23 to $1,837,419,886 on November 30. But on the following day, December 1, 1917, with the receipt of the proceeds of the new certificates it attained the record height of $2,515,471,407. In the next two weeks and a half, the outstanding parts of all issues of certificates put out in anticipation of the Second Liberty Loan were called for redemption or paid off upon maturity, to an aggregate amount of $ 1,337,960,440; there was advanced to the Allies some $317,500,000; and there was disbursed in ordinary expenditure $403,138,459. On December 19, 1917, the available balance was back again at $775,899,891. But on the other hand the Treasury was for the first time since July free from all short-term obligations, other than the new series of certificates issued in anticipation of the war taxes.

For the next month receipts from the January issue of tax anticipation certificates, together with the final installment of the Liberty Loan payable on January 15, 1917, were enough with ordinary revenues to meet the Treasury's requirements. On January 22, 1917, the Treasury balance was $763,-830,030, having touched $653,449,458 as the low point in the interval — and the second cycle in our war financing may be said, with this downward tendency, to have been completed.

III

On January 22, 1918, the Treasury entered upon the third cycle of its war financing — short-term borrowings in anticipation of a Third Liberty Loan. The characteristic of the first phase, as compared with that of the preceding cycles, was the greater regularization of procedure. An issue of $400,000,000 certificates, dated January 22, was succeeded three weeks later by an announced program of fortnightly issues of $500,000,000 each. The first of such issues was made on February 8, 1918, and was followed by like emissions bearing date of February 27, March 20, ($543,032,500), April 10, ($551,226,500), and April 22, ($517,826,500). In addition the Treasury disposed, in "over the counter" sale through the banks, of three monthly series of tax anticipation certificates to an aggregate amount of $256,924,000. Finally, the current yield of war taxation became more productive, the ordinary receipts of the Treasury being $565,951,791 for the first four months of 1918, as compared with $409,442,777 for the last four months of 1917.

The largest part of this flood of incoming revenue was absorbed by the rapid increase in war disbursements despite a marked decline in the Treasury's advances to the Allies. The Allies received only $370,200,000 in January, $325,000,000 in February, $317,500,000 in March and $287,500,000 in April, as compared with $471,929,750 in November and $492,000,000 in December. But the Treasury's "ordinary disbursements" including interest

paid on the public debt mounted from $611,297,425 in December, to $715,302,039 in January, to $665,-400,691 in February, to $820,126,181 in March, to $910,756,758 in April.[7] In reflection, the Treasury balance moved rhythmically and within fairly uniform limits — rising above $1,100,000,000 with successive certificate issues and dropping back to some $800,000,000 in the intervals. Starting with $763,830,030 on January 22 at the beginning of the period, the balance was again $835,279,426 on May 3, and $784,535,899 on May 11, 1918 — the eve of the Third Liberty Loan flotation.

Subscriptions to the Third Liberty Loan aggregated $4,170,019,650 and this full amount was allotted. The terms of subscription called for installment payments of 5 per cent. on May 4–9, 20 per cent. on May 28, 35 per cent. on July 18 and 40 per cent. on August 15, with option of overpayment or payment in full at any installment date. The flotation was marked by an even heavier overpayment of the first installment than had distinguished the two preceding loans. On June 1, 1918, it was stated that "of the entire amount of subscriptions received, it is estimated that more than 80 per cent. is already fully paid."[8] The final figures showed that payments up to May 28 aggregated $3,211,967,452 or 77 per cent. of the nominal amount of the loan. The actual payments were constituted as follows:[9]

[7] "Monthly Summary of the Foreign Commerce of the United States," August, 1918, p. 95.

[8] *Federal Reserve Bulletin,* June, 1918, p. 484.

[9] *Federal Reserve Bulletin,* July, 1918, p. 588.

Cash	$ 878,865,549	27%
Credit	1,509,869,112	47%
Certificates	823,332,600	26%
Total	$3,211,967,452	100%

The Loan flotation was reflected in a precipitate increase of the Treasury balance from $784,535,899 on May 11, to $1,360,380,795 on May 13, to $1,831,757,889 on May 20 — the high point — and back to $1,528,165,052 on May 28. The unpaid installments of the Loan, due after the heavy overpayment of May 28, held forth promise of some $950,000,000 to accrue during July and August. But on the other hand loan anticipation certificates of indebtedness of June and July maturities were still outstanding after May 28 to a nominal amount of $1,612,085,500. The yield of income and excess profits taxes payable on June 25 had been in part anticipated by the six series of tax anticipation certificates designed for such payments issued in the preceding seven months to an aggregate amount of $1,624,403,500. The actual collections from 1918 income and excess profits taxes for the fiscal year ended June 30, 1918, were $2,839,083,585; so that, over and above the certificates tendered, the Treasury may be supposed to have received some $1,200,000,000 current funds from this source.[10]

Although provision of additional revenue could not have been long thereafter delayed, the Treasury might thus have safely continued through to the end of the fiscal year without recourse to renewed bor-

10 "Internal Revenue Collections for the fiscal year 1918: Preliminary Statement, September 14, 1918."

rowing. Total ordinary disbursements for June were notably greater than for May — $1,263,914,-905 as compared with $1,068,203,026; but advances to the Allies were less almost by the same amount — $242,700,000 as compared with $424,000,000.[11] There was, however, seeming reluctance on the part of the Treasury to tolerate any considerable reduction in its net balance or indeed to modify the policy of progressive increase, and preparations were made for further anticipatory borrowing — thus terminating the third cycle of the Treasury's operations.

IV

On June 12, 1918, announcement was made by the Treasury of the program of fortnightly certificate borrowing in anticipation of the Fourth Liberty Loan. On June 25, with the net balance standing at $1,531,894,060 the first of such issues was allotted to the amount of $839,646,500. In the succeeding three months, six additional issues were emitted to an aggregate amount (including the issue of June 25) of $4,659,820,000. In addition, a series of certificates in anticipation of 1919 income and excess profits taxes were placed on continuing sale on August 20, and an appreciable amount allotted up to October 1, 1918.

These operations were attended by the same striking results noted in connection with the certificate borrowing in anticipation of the earlier Liberty

[11] "Monthly Summary of Foreign Commerce of the United States," August, 1918, p. 95.

Loans. The Treasury balance rose with each certificate issue and declined in the interval, the crests and hollows together constituting a manner of higher plateau as compared with the preceding altitudes. Starting from above $1,500,000,000 just before the resumption of certificate borrowing, the Treasury balance remained, with bare exception, well above $1,400,000,000 through July and rose above $1,600,000,000 in the second week of August. Thereafter the disappointing response to the issue of tax anticipation certificates offered on August 20, and perhaps even the deliberate correction, in accord with suggestion, of the prevailing policy of an increasing balance resulted in marked reduction. On August 31 the balance had dropped to $1,082,605,200 and in the seven weeks that succeeded up to the flotation of the Fourth Liberty Loan it did not again attain the July and early August levels.

The flotation of the Fourth Liberty Loan opened on September 28, 1918, and the subscription campaign extended through October 19. The amount of the offering had been fixed at $6,000,000,000; but there was over-subscription of almost $1,000,000,000, and the lists were actually closed with $6,989,047,000 allotted and the number of subscribers "in excess of 21,000,000." The terms of subscription called for an initial payment of 10 per cent. due at any time up to October 19, and for subsequent installments of 20 per cent. on November 21, 20 per cent. on December 19, 20 per cent. on January 16, and 30 per cent. on January 30, 1919. The actual receipts of the Treasury on account of the Loan up to October 31, 1918, were $2,295,109,703, permit-

ting the payment of outstanding parts of the certificate issue due October 24 — issue of June 25, 1918; $839,646,500 in nominal amount — and still leaving the Treasury encumbered with an unwieldy balance of $1,845,739,992 [October 31, 1918].

In attempting to appraise the fiscal, as distinct from the economic and social results of certificate borrowing, it is important to set forth the standards by which the effectiveness of a credit expedient in war finance is to be gauged. There will be little difference of opinion among students of finance or financial administrators as to these standards. The Treasury must obtain that part of its revenue which is to be procured by borrowing with as little delay, as slight risk and as moderate cost as possible. Readiness, certainty and economy are the criteria of the fiscal serviceableness of a war borrowing device. It is with reference to these that our fiscal experience in the use of certificates of indebtedness should be examined.

In the matter of fiscal readiness, certificate borrowing has proved, as might be expected, a highly efficient method. This is true both of authorization and of administration. It has been possible to secure legislative approval without protracted debate or embarrassing delay, and there has been popular sanction in financial circles and in public opinion of the borrowing procedure. How much of this assent represents intelligent approval, how much sheer faith cannot be determined. Financial legislation in the United States has rarely been preceded or even accompanied by a campaign of education — in

war financing, least of all. In the matter of certificate borrowing the obvious plausibility of the operation, added to the technical difficulty of tracing its ultimate effects has encouraged popular acquiescence. Certainly without the remotest approach to suppression or concealment, the Treasury has been able to effect its end unhindered by popular disfavor or resistance.

Not only has it been possible to secure prompt and easy authorization for certificate borrowing, but its actual administration has probably involved less initial effort and smaller preliminary cost on the part of the Treasury than any alternate procedure productive of like amount would have entailed. This is a result of the dual character of the operation — (a) the placing of the certificate issues and (b) the flotation of the liquidating loan. It is possible that the combined cost in trouble and outlay has been, if anything, more considerable than that of a direct bond issue. But of this total only a very minor part has been associated with the first stage — certificate borrowing proper. The effective machinery of the Federal Reserve System has permitted economical allotment and remittance. As in the case of bank credits or demand notes, the charges of administration if not constant certainly have not varied directly with the amount borrowed. Finally the mechanism of distribution, once established and regularized, has been capable of re-use and larger use with increasing efficiency and diminishing cost.

Understanding by " certainty," the capacity of a borrowing device to supply the exchequer, without

risk or delay, with such amounts at such times as the war budget requires — the effectiveness of certificate borrowing has been again little short of ideal. The huge maximum amounts authorized, the always present power to re-issue or refund maturing issues, the mechanism of the Federal Reserve Banks — payment by credit, exemption of government deposits from reserve requirements, and rediscount facilities — have virtually put it within the reach of the Treasury to obtain for itself any amount at any time that the national defense may have made necessary. This has been true of the vast sums borrowed at more or less regular intervals by formal certificate issues, and also of the special advances made on occasions to meet extraordinary emergencies. A certain awkwardness may have been suffered from time to time before the borrowing procedure had become perfected and regularized. But with the successful placing of the issues in anticipation of the Second Liberty Loan, these difficulties may be said to have been left safely behind. Since then the task of the Treasury in this respect has been little more than to extend an existing mechanism to meet increasing requirement.

War time borrowings should be effected not only readily and certainly — but cheaply. On its face the certificate method would seem to be admirably adapted to economical borrowing. The interest rate on such temporary advances is presumably less than upon funded loans, and the readiness with which funds can be secured by certificates — both as to occasion and amount — should make it possible

for the Treasury to adjust borrowings to needs with far greater precision than in the case of infrequent bond issues. In neither of these particulars were the maximum possibilities realized. Only in the case of the ante-bellum issue of March 31, 1917, was the interest rate — two per cent.— notably less than the presumable cost of funded borrowing. With succeeding issues the differential between the certificate rate and the Liberty Loan rate steadily declined until the advantage lay in the other direction. Of the four issues in anticipation of the First Liberty Loan, the first two bore three per cent. and the remaining two, three and a quarter per cent.— as compared with the three and a half per cent. Loan rate. Of the six issues in anticipation of the Second Liberty Loan, the first three bore three and a half per cent. and the remaining three, four per cent.— as compared with the four per cent. Loan rate. Of the six issues in anticipation of the Third Liberty Loan, the first two bore four per cent. and the remaining four, four and a half per cent.— as compared with the four and a quarter per cent. Loan rate. All seven issues in anticipation of the Fourth Liberty Loan bore four and a half per cent. as compared with the four and a quarter per cent. Loan rate.

The conspicuous economy of short-term borrowing lies theoretically in the means it offers of supplying the Treasury with the funds to be raised by credit at the precise time and to the exact amount desired — due regard being had for the maintenance of such adequate working balance as prudent fin-

anciering would dictate.[12] An ordinary long-term bond issue must inevitably be floated some time in advance of the date at which its proceeds will begin to be needed, and the amount made available and become subject to interest charge will for a considerable time be in excess of the Treasury's needs. It is possible to attempt to reduce the cost and strain of this plethora by permitting the optional payment of bond subscriptions in several installments, and by arranging for the redeposit of funds in subscribing banks qualified as government depositaries with nominal interest return. But as long as installment payment is not mandatory there will be heavy overpayment and payment in full, and in such event the difference between the interest rate borne by the bonds, and the interest return upon the public deposits constitutes a net charge.

On the other hand, certificate borrowing — the machinery once perfected — should enable the Treasury to delay recourse to credit until the requirement is close at hand, and thereafter should permit a precise adjustment of loan to need. The distinction is much akin to the advantage which a business man would enjoy with respect to the banking accommodations which he requires were the banking mechanism so secure, his personal credit so indubitable, the money market so stable that he could entirely forego time loans and rely entirely on demand borrowing.

[12] "The first rule laid down by the science of finance is, that the demands of the government for money shall never exceed the amount necessary to perform with economy those duties imposed upon it" (H. C. Adams, "Public Debts," New York, 1887, p. 92).

The actual advantage which the Treasury has derived on this score from certificate borrowing has been considerably less than the maximum theoretical possibility. This has been in consequence of what might be described as the policy — deliberately adopted or insensibly developed — of a mounting Treasury balance.

The "net balance" of the Treasury may be regarded as that amount which a conservative financial policy deems it necessary to keep on hand ready for the prompt payment of public charges and advances. In ordinary times the balance is a part of the formal budgetary plan — not exposed to extraordinary requisition, and subject to marked increase or reduction only to the extent that estimated revenue or expenditure vary. It is likely thus, on the one hand to be more stable; but, on the other hand, if deranged, to be less easy of restoration to the accustomed level.

In war time these conditions are reversed. Subject not only to a heavier continuing out-go, but to more frequent and more irregular demands, the working balance must by virtue of this instability be larger. Opposed to this tendency, is the facility afforded by certificate borrowing for quick and easy replenishing of a depleted balance. Under such conditions the Treasury might be supposed to establish or accumulate a larger working balance at the outset, but thereafter to keep it within such bounds or at most to subject it to a moderate progression with increasing public expenditure.

The actual course of the Treasury balance since our entry into the war has been, contrary to the fore-

going, in the nature of periodic but progressive increase. Reduced to graphic form, it represents the appearance of a series of irregular mounting plateaus — the high point of each of which has been less than the low point of the one next succeeding. The stages have corresponded with the four cycles of our financing — the central incident of each of which, it will be remembered, has been a loan flotation. As long as payment in full or over-payment of installments of bond subscriptions is permitted a swollen balance is perhaps inevitable during and immediately after the period of flotation. The opportunity for close adjustment of borrowings to requirements presents itself during the first stage in the cycle — the period of certificate borrowing. But even here the phenomenon of a mounting balance in our war financing has been pronounced. From April 25 to June 8, 1917 — the first period of certificate borrowing — the average daily balance was $179,579,613 with $135,099,128 on April 25, as the low (omitting May 5-9) and $263,888,100 on May 12 as the high point. From August 9 to October 24, 1917 — the second period of certificate borrowing — the average daily balance was $453,748,384, with $285,283,572 on October 17, as the low and $656,349,914 on October 18 as the high point. From January 3 to April 22, 1918 — the third period of certificate borrowing — the average daily balance was $926,391,004, with $653,449,458 on January 15 as the low and $1,196,811,694 on March 5, 1918, as the high point. From June 25 to August 31, 1918, the fourth period of certificate borrowing up to the date at which the policy of the

Treasury as to its working balance may be regarded as having undergone modification — the average daily balance was $1,487,189,694 with $1,082,605,-200 on August 31 as the low and $1,916,932,863 on June 26 as the high point.

Even were it normal for the balance to increase proportionately with growth in expenditure — an assumption that is under existing conditions obviously unwarranted — the increase in the balance far outran the increase in disbursements and in loans to the Allies. This will appear in the following table:

		Average daily net balance	Average daily ordinary disbursements and advances to Allies
I	(Apr. 25–June 8, 1917)	$179,579,613	$19,211,146
II	(Aug. 9–Oct. 24, 1917)	453,748,384	32,294,322
III	(Jan. 3–Apr. 22, 1918)	926,391,004	43,784,033
IV	(June 25–Aug. 31, 1918)	1,487,189,694	65,044,025
	Increase from I to II....	152.7%	68.0%
	Increase from II to III..	104.1%	35.5%
	Increase from III to IV.	60.5%	48.5%

The purpose of the Treasury in increasing its working balance in this manner by short-term borrowings is not clear. The situation was at no time out of ready and complete control. By limiting overpayments or payments in full and requiring installment quotas in settlement for Loan subscriptions, by insisting upon the tender of certificates in such settlements and enforcing restrictions upon the use of payment by credit, by applying the Treasury surplus to the redemption before maturity of corresponding amounts of outstanding certificates and by reducing the volume and lengthening the in-

terval of new certificate issues, the Treasury might at any and all times have prevented or at least quickly corrected an over-full balance. We may assume a certain reluctance on the part of depositary banks to suffer a net reduction of government deposits, when in the course of public expenditure such deposits were drawn upon. But with the rediscount facilities of the Federal Reserve System making it possible for the depositary banks to increase their available funds under such circumstances with little effort and at moderate cost, it seems unlikely that the Treasury would have given consideration to pressure from this quarter whether presented in the interest of monetary ease or of some related reason. Until such time, however, as the purpose of the Treasury shall have been fully set forth, it seems idle to speculate as to motive. The essential fact is that to the extent that the working balance was built up or maintained at a higher level than safe financing necessitated, the maximum economy of certificate borrowing was unrealized.

There remain to be considered the advantages of certificate borrowing as a continuing mode of war financing. Over and above its effectiveness or otherwise in meeting immediate fiscal necessities, in how far may a policy of anticipatory borrowing be regarded as rendering easier or more difficult the prospective financial requirement? Having to do with a war of highly uncertain duration and of rapidly progressive cost, it is quite conceivable that a present fiscal advantage may be gained only at excessive cost with respect to future needs.

Theoretical analysis suggests that there are two

dangers to be here apprehended. The first has to do with the psychological disadvantage of being obliged to borrow to pay off an already contracted debt rather than to provide additional available funds. The direct success of certificate financing depends entirely upon the certainty with which at appropriate intervals long-term loans, into which the certificates may be funded or out of the proceeds of which they may be redeemed, will be absorbed by public subscription. Patriotic ardor rather than economic calculation determines the success of such flotations and the knowledge that the operation, involving as it does a considerable measure of economy and self-denial, is necessary to extinguish short-term indebtedness rather than to put the Treasury in funds for further imperative expenditure, is likely to exert a chilling effect upon the public mind.

In actual experience, it is doubtful whether this deterrent has up to the present time figured. There has been in the case of each Liberty Loan a substantial, although a declining margin between the volume of anticipatory borrowing and the principal of the funded loan. More remarkable, there has been a singular non-comprehension on the part of the public that the anticipated proceeds of each Loan have in fact been largely expended prior to the flotation, and the loan campaigns have been marked by no general attempt to spread enlightenment on this score. With respect to the future, neither of these two conditions is likely to obtain to the same extent. The volume of anticipatory certificate indebtedness promises to approximate more closely

to the principal of the funded loan, and there is a popular growing appreciation of the fact that under the prevailing system a Liberty Loan is actually spent before it is subscribed. Fiscally valid though such procedure may be, it can hardly be doubted that the reaction upon the public mind will be to some extent unfavorable.

A second danger to which any sound fiscal provision for the immediate future may be conceivably exposed by certificate borrowing is closely connected with the inherent defect of the short-term loan as an habitual device in war financing — descent to renewal and refunding. As long as the anticipatory issues are completely funded into or redeemed out of the succeeding Liberty Loan, the way is left clear for a renewal of the process. If however the popular absorption of the Loan falls short of the volume of outstanding certificates of indebtedness, the Treasury is compelled either to renew or refund maturing certificate issues or to load up the banks with long-term obligations or to have earlier recourse to another Loan. Similarly, if the proceeds of the Loan be applied to current expenditures rather than to the redemption of certificates the anticipatory issues partake of the nature of independent short-term loans that must upon maturity either be renewed, or be liquidated from other sources.

In both of these respects the actual experience of the Treasury, while up to the present exempt, has at least shown tendencies that may not be safely neglected. In the Fourth Liberty Loan not only was the ratio of outstanding certificates to the nom-

inal principal of the Loan greater than in any of the preceding cycles, but in so far as available data make any intelligent opinion possible — the ratio of such anticipatory borrowing to the investment or "savings" absorption of the loan was notably greater. Moreover the later maturity of the final certificate issues (extending up to January 30, 1919), combined with the heavy overpayment of the first installment of the loan whereby only some 14 per cent. of the Loan was left unpaid, and the relatively minor use of certificates in connection therewith — make it reasonably certain that such issues must be either refunded or liquidated from out of the proceeds of subsequent short-term borrowing.[13] Confronted as the Treasury is with heavy deficiency appropriations and with additional tax revenue still in process of enactment and destined to become only slowly available, certificate financing faces not only the inevitable disadvantage of borrowing to pay debts but the graver necessity of renewal and extension of existing short-term loans in face of the need of additional borrowing — unless indeed further recourse is to be had in one form or another to bank borrowing or to the projection of a succeeding Loan earlier than has heretofore been deemed prudent. An unexpected termination of the war has, of

[13] The issue of the second series of 1919 tax anticipation certificates dated November 7 (Series 1) closed on November 27, with total subscriptions to the amount of $794,172,500. On November 8, 1918, the Treasury gave notice of the redemption at par and accrued interest on November 21, 1918, of the $575,706,500 certificate issue of August 6, 1918, maturing December 5, 1918 (*Commercial and Financial Chronicle*, November 9, 1918, p. 1784); December 7, 1918, p. 2138).

course, divested the situation of some of its difficulty. But conservative financial policy will hesitate to place undue reliance upon the genius of the Republic.

THE MONEY MARKET

IV

THE MONEY MARKET

THE prime purpose of a fiscal expedient in time of war is to supply the Treasury with funds sufficient to meet the extraordinary requirements of national defense. The further effectiveness of a war revenue measure is gauged by its success in satisfying the Treasury's needs with least disturbance of the business activity of the nation and with least injustice to social classes. In matters of taxation these indirect but none the less vital tests are the resultant pace of industry and the final incidence of tax burdens. With respect to public borrowing, the criteria are the course of the money market and the movement of prices. The course of the money market is likely to register the strain and dislocation put upon trade and industry. The movement of prices will disclose the presence and extent of monetary inflation, with its accompaniments of social injustice and economic hardship.

It becomes important, accordingly, to examine in how far the use of certificates of indebtedness in our war financing has affected the money market and the price level. In the present chapter examination will be made of the relation of our short-term borrowing to the supply and cost of business capital; in the following chapter the effect of certificates of in-

debtedness upon the volume of credit and the level of prices will be studied.

The avoidance of monetary dislocation has been an avowed purpose of the Treasury in the use of certificates of indebtedness in conjunction with its borrowing policy. This intention has been reiterated to the degree, it might be almost objected, of under-emphasis upon the real end which the certificate issues were designed to serve — the maintenance of the Treasury balance.

At the outset of our war financing there was no such expressed purpose. The report of the Ways and Means Committee of March 3, 1917, accompanying the war revenue bill recommended an increase in the authorized volume of certificates of indebtedness on the score that "under the present system of taxation a considerable portion of the receipts are not due and payable until the last month of each fiscal year." Similarly, the ante-bellum issue of $50,000,000 certificates offered on March 27, as well as the contemplated additional issue of like amount to be emitted before the end of the fiscal year, were described as "in anticipation of the payment of the corporation and individual income taxes due in June, 1917"— with no intimation of other service.

The further purpose which certificate borrowing was designed to serve might be regarded as foreshadowed in the First Liberty Loan act in the increase in the authorized volume of certificates of indebtedness from $300,000,000 to $2,000,000,000 — a sum obviously in excess of what was needed to

keep the Treasury in funds until the administrative delays reasonably incident to a loan flotation were overcome. In an accompanying statement of the Secretary of the Treasury of April 20, 1917, this purpose was first clearly set forth in a form conveniently described as the money market argument: [1]

> "The Secretary appreciates the desirability of avoiding any derangement of the money market, and in the financial operations in which the Government is about to engage it will be his purpose to adjust receipts and disbursements in such a way that as far as possible money paid in will be promptly returned to the market. The contemplated sale of Treasury certificates is in line with this policy. Should the banks during the next few weeks absorb several hundred million dollars of these certificates, the proceeds being paid out in the course of business, the banks will possess ready means with which to meet withdrawals made later by depositors in paying for bond subscriptions. The result of this method will be a gradual anticipation of payment on account of bonds with a steady and continuous return to the banks of the moneys paid in."

The same consideration appeared in the assurance given at this time by the Federal Reserve Board to the member banks: [2]

> "The Federal Reserve Banks may be counted upon by offering liberal terms of rediscounting to do their utmost in counteracting any effect of temporary dislocation of banking funds."

The plan recommended by the Treasury on May 16, 1917, for the payment of subscriptions to the First Liberty Loan by the use of credit and the tender of certificates of indebtedness was designed "to

[1] *Federal Reserve Bulletin,* May, 1917, p. 342.
[2] *Federal Reserve Bulletin,* May, 1917, p. 342.

avoid, even temporarily, a derangement of the money situation," and the "accumulation of great cash payments within a few days." As to the desirability of this procedure, whereby subscribing banks might "gradually and without disturbing the money market, acquire exchange payable in the place where subscriptions are to be paid" so that "the bank resources of the United States as a whole will not be diminished, and the operation involve only a shifting of credits," the most impressive language was used: [3]

> "The Secretary feels that he cannot too strongly urge upon the banks and trust companies of the country that it is their patriotic duty to prepare for the payments which they will have to make on account of the Liberty Loan, first, by the acquisition of certificates of indebtedness, and second, by qualifying under the act so as to be in a position to make payment by credit if the subscriptions by and through them are likely to amount to $100,000 or more bonds."

Early in August, 1917, the Treasury resumed the issue of certificates — this time in anticipation of the Second Liberty Loan. The Treasury's announcement was merely to the effect that the offerings were resumed "in order to provide funds to meet the requirements of the United States for its own expenditures and for its advances to foreign Governments at war with the German Government." In the succeeding fortnight, with the incorporation of two new elements in the Treasury's borrowing policy — the maintenance of a larger

[3] Treasury Department Circulars No. 79 of May 16, 1917, and No. 81 of May 29, 1917.

Treasury balance and the extension of payment by credit from bond to certificate purchases — the money market argument came into greater prominence as a necessary reinforcement of the fiscal purpose. In conjunction with the certificate issue of August 28, 1917, and the proposed redeposit of proceeds with subscribing banks — the Treasury announced that "it is expected that certificates of indebtedness will be issued from time to time somewhat in advance of the immediate requirements of the United States," and added an explicit statement in explanation:[4]

"The primary object of this is to avoid the financial stress which would result from the concentration of the payments for a great bond issue upon a single day (which cannot be avoided wholly by provision for payment by installments as a great proportion of subscribers prefer to make payment in full on one day as a matter of convenience). Those who acquire certificates of indebtedness, in advance of the bond issue, gradually, without disturbing the money position, purchase exchange payable where the bond subscriptions must be paid (that is, at the Federal Reserve Banks), in advance of the date when the payment is to be made, and meanwhile secure a substantial return upon their money."

This statement as to "the primary object" reappeared in the announcement of the certificate issue of September 17, 1917, and in substance repeatedly thereafter, and may be regarded as fairly representative of the Treasury's subsequent emphasis upon the stabilizing effect of certificate borrowing.[5] The same note was struck in connection with the cer-

[4] *Federal Reserve Bulletin,* September, 1917, p. 664.
[5] *Federal Reserve Bulletin,* November, 1917, p. 830.

tificate issues in anticipation of the Third and Fourth Liberty Loans and of the 1918 and 1919 income and excess profits taxes, and it has been echoed and re-echoed in financial journals and banking publications.

The need for some equilibrating device in the money market during the period of our war financing has obviously been great. The four Liberty Loans, the war taxes on incomes and excess profits and the enormous expansion of quasi-governmental industries have involved such huge and such abrupt requisitions upon the available capital and credit of the nation, that continuing strain and recurrent jar — verging upon dislocation and convulsion — would seem to have been inevitable.

And yet as indicated by the general experience of the business community and as evidenced by the actual course of the money market there has been neither business derangement nor monetary dislocation. Stringency has prevailed; but it has been largely of a kind and to a degree at first sanctioned and subsequently imposed by administrative policy with a view to the conservation of credit, the restraint of non-essential production, and the prevention of banking over-expansion.

The relative number of business failures in the country is at all times an insufficient index of monetary conditions, and this inadequacy is very much more pronounced when normal business tendencies have been deflected and controlled in many directions by the exigencies of war-time. But the facts as to a lower business mortality rate during the per-

iod of our war borrowing are so striking that they may not be entirely neglected.

The number of business failures reported in 1917 was 20.7 per cent. less than in 1916, 31 per cent. less than in 1915, 22 per cent. less than in 1914, 8 per cent. less than in 1913, 5 per cent. less than in 1912, and but 3 per cent. greater than in 1911. The liabilities of those failing were 5.4 per cent. less than those in 1916, 41 per cent. less than those in 1915, 53 per cent. less than those in 1914, 43 per cent. less than those in 1913. Not only were the failures the lowest since 1911 but the liabilities were the smallest since 1909, this despite the fact that the number of those in business in the country had increased some 18 per cent. The percentages of those failing to those in business was .71 per cent. in 1917, as against .92 per cent. in 1916, 1.07 per cent. in 1915, and .95 per cent. in 1914. The percentage of business mortality in 1917 was actually the lowest — with the exception of the years 1906 and 1907 — in the past thirty-seven years.[6] This lessened mortality has since continued. The failures reported for the first nine months of 1918 showed a decrease of 24.8 per cent. from the like period of 1917 and were only about one-half of what they were in the like period of 1915 —"a very favorable year up to the time of the outbreak of the first Balkan war in the autumn." Liabilities were the smallest recorded in any year since 1906, being 15 per cent. smaller than the year before and less than half those of the years 1914 and 1915.[7]

[6] *Bradstreet's,* January 5, 1918.
[7] *Bradstreet's,* October 5, 1918.

It would be unsafe to draw any outright conclusion as to prevailing monetary conditions from this exhibit. At least this much may however be ventured: the business community has during this period suffered no monetary convulsion with its inevitable accompaniment of widespread disaster and ruin.

More specific evidence that although strained the business world has been neither dislocated nor convulsed is afforded by the actual course of the money market during the period of our war borrowing. The prevailing rates of call and time money in New York City in the period under review have been as follows: [8]

ACTUAL RATES OF INTEREST
(Per cent.)
Call Loans at New York Stock Exchange

	'08	'09	'10	'11	'12	'13	'14	'15	'16	'17	'18
Jan.	4.75	1.81	4.72	3.18	2.43	3.23	2.38	2.13	1.88	2.05	4.10
Feb.	1.81	2.25	2.78	2.28	2.28	3.31	1.78	1.97	1.88	2.41	4.99
Mar.	1.85	1.85	2.88	2.28	2.42	4.19	1.91	1.93	1.91	3.13	5.19
Apr.	1.72	1.94	3.28	2.30	3.00	3.43	1.83	2.09	2.09	3.13	4.08
May	1.66	1.84	3.63	2.31	2.75	2.75	1.78	1.94	2.28	3.13	5.16
June	1.52	1.87	2.77	2.40	2.75	2.25	1.84	1.85	2.97	3.63	5.00
July	1.22	2.06	2.41	2.36	2.88	2.25	2.65	1.88	3.13	3.97	5.63
Aug.	1.06	2.17	1.55	2.31	2.84	2.25	6.25	1.78	2.35	3.63	5.88
Sept.	1.35	2.69	2.00	2.28	2.63	2.90	6.00	1.78	2.78	3.38	5.88
Oct.	1.44	4.31	3.13	2.33	5.33	3.69	6.00	1.81	2.60	3.38	6.00
Nov.	1.75	4.65	3.23	2.72	6.38	3.75	5.41	1.88	3.13	3.50	5.58
Dec.	2.90	5.03	3.38	4.03	6.50	4.63	3.38	1.94	4.44	3.91	5.00
Average	1.97	2.70	2.97	2.57	3.52	3.22	3.43	1.92	2.59	2.40	5.29

[8] The figures for 1908–1915 are Professor W. C. Mitchell's ("Business Cycles," 1913, p. 155; *Journal of Political Economy*, June, 1913, p. 512; *ibid.*, February, 1916, p. 146.) For 1916–18 the data have been computed by the writer according to Professor Mitchell's method.

Commercial Paper: 60–90 days

	'08	'09	'10	'11	'12	'13	'14	'15	'16	'17	'18
Jan.	6.59	3.68	4.75	3.98	3.90	4.93	4.53	3.84	3.13	3.55	5.58
Feb.	5.06	3.54	4.44	4.09	3.75	4.91	3.84	3.75	3.13	4.13	5.69
Mar.	5.63	3.50	4.50	3.88	4.19	5.75	3.88	3.38	3.13	4.13	5.88
Apr.	4.38	3.50	4.75	3.66	4.15	5.53	3.73	3.66	3.13	4.28	5.90
May	3.94	3.44	4.75	3.63	4.19	5.36	3.88	3.72	3.13	4.83	5.88
June	3.69	3.25	4.81	3.69	4.00	5.88	3.84	3.65	3.63	5.50	5.88
July	3.75	3.38	5.38	3.78	4.53	6.06	4.40	3.25	3.97	5	5.94
Aug.	3.01	4.04	5.43	4.19	5.00	6.00	6.34	3.53	3.63	4.75	6.00
Sept.	3.89	4.25	5.53	4.54	5.56	5.78	6.70	3.25	3.38	4.82	6.00
Oct.	4.10	5.03	5.56	4.35	5.93	5.69	6.44	3.22	3.38	5.19	6.00
Nov.	4.04	5.09	5.50	3.91	5.72	5.56	5.50	2.98	3.50	5.38	5.98
Dec.	3.85	5.09	4.66	4.63	6.00	5.68	4.35	3.13	3.91	5.44	5.81
Average	4.42	3.86	5.01	4.02	4.74	5.59	4.79	3.45	3.55	4.73	5.88

Commercial Paper: 4–6 Months

	'08	'09	'10	'11	'12	'13	'14	'15	'16	'17	'18
Jan.	6.70	4.40	5.28	4.61	4.63	5.50	5.09	4.38	3.50	3.98	5.73
Feb.	5.80	4.22	5.16	4.72	4.50	5.50	4.38	4.38	3.50	4.47	5.75
Mar.	...	4.28	5.23	4.59	4.91	6.25	4.44	3.93	3.50	4.50	6.00
Apr.	5.25	4.25	5.59	4.28	5.00	6.20	4.28	4.25	3.50	4.63	6.08
May	4.25	4.29	5.45	4.33	5.00	5.88	4.50	4.34	3.50	5.18	6.13
June	4.64	4.21	5.50	4.63	4.50	6.38	4.50	4.33	4	5.03	6.04
July	4.58	4.15	6.16	4.79	5.08	6.66	5.03	3.81	3.88	5.15	6.10
Aug.	4.43	4.56	6.30	4.86	5.69	6.63	7.00	4.01	4.13	5.22	6.31
Sept.	4.75	4.75	6.31	5.33	6.13	6.45	7.60	3.88	4	5.44	6.00
Oct.	...	...	6.21	4.93	6.50	6.38	7.56	3.91	3.95	5.63	6.00
Nov.	...	5.98	6.15	4.72	6.50	6.25	6.44	3.45	3.94	5.69	5.98
Dec.	4.69	5.59	5.28	5.25	6.50	6.30	4.85	3.50	4.19	5.75	6.00
Average	4.95	4.67	5.72	4.71	5.41	6.19	5.47	4.01	3.80	5.76	6.01

Summary

	'08	'09	'10	'11	'12	'13	'14	'15	'16	'17	'18
Call loans	1.97	2.70	2.97	2.57	3.52	3.22	3.43	1.92	2.59	2.40	5.29
60–90 days paper	4.42	3.86	5.01	4.02	4.74	5.59	4.79	3.45	3.35	4.73	5.88
4–6 months paper	4.95	4.67	5.72	4.71	5.41	6.19	5.47	4.01	3.80	5.06	6.01

In studying the above exhibit, it is necessary to remember that for the largest part of our war bor-

rowing period the normal tendencies of the money market were influenced and, within the possibilities of the situation, were dominated by the deliberate control of the New York City money market. On September 5, 1917, the Liberty Loan General Committee of the New York District, acting at the instance of and in coöperation with the Federal Reserve Bank of New York, appointed a "sub-committee on money" for the purpose of "securing the most complete coöperation with the Government in its financial program by all the financial interests of the city." [9]

In the succeeding months under the chairmanship of the governor of the Federal Reserve Bank of New York and with a membership representative of the most powerful financial institutions of the city, this "money committee" undertook and carried out with increasing effectiveness what amounted to a deliberate rationing of the money market. Upon the basis of daily information gathered by the Federal Reserve Bank, certain of the larger banks and trust companies, without formal action being taken and with each institution acting on its individual account in the matter of terms and collateral, made available from time to time adequate amounts of time and call money "for preventing any dearth of funds and any friction in the monetary mechanism." While steps were thus taken to prevent money rates from advancing to extreme figures, very pronounced measures were adopted by propaganda [10] and out-

[9] "The Financial Review: Annual for 1918," p. x, 1; *Federal Reserve Bulletin,* October, 1918, p. 935.

[10] See resolutions adopted by the board of directors of the

right limitation to restrict borrowing and to curtail loans and credits. These may be said to have culminated in September-October, 1918, when the money committee acting through the governing body of the New York Stock Exchange checked the imminent tendency to expand the collateral loan account by providing through drastic measures that "for the present there should be devoted to the security market no additional credit beyond the funds now so used." [11]

The result of such intervention was to replace to a large and increasing extent competitive by conventional conditions in the New York money market, with immediate sympathetic reflex in all capital markets of the country. The degree to which this "pegged" condition was realized is indicated in a well informed summary of the money market during September, 1918: [12] "In a word, the money situation in New York may be said to have been stabilized on a six per cent. basis for all classes of loans for whatever business was permitted to pass."

If with the foregoing facts in mind the cost of capital during the period in which the United States has been at war be compared with the rates prevailing in the eight years preceding, it appears that the war rates have on the whole been higher than the rates prevailing in the four years from 1908

Federal Reserve Bank of New York regarding the conservation of credit, in response to Governor Harding's letter of July 6, 1918 (*Federal Reserve Bulletin,* August, 1918, pp. 741–2.)

[11] *Federal Reserve Bulletin,* October, 1918, p. 935.

[12] *Commercial and Financial Chronicle: Monthly Review,* October, 1918, p. 17.

through 1911; lower than the rates in the three years from 1912 through 1914 and higher again than the rates of the two years 1915 and 1916. The first of these intervals, 1908-1911 was a period of business depression following the crisis of 1917; the second, 1912-1914, although of mixed quality was on the whole a period of business revival and financial activity; the third, 1915-1916, was a period of war convulsion and feverish adjustment to wholly abnormal conditions.

The cost of commercial capital in the United States during the period of our actual belligerency has thus been greater than in the last preceding period of business depression, less than in the last preceding period of business activity, and greater than in the highly exceptional years immediately preceding the entry of the United States into the war.

Just as the capital strain suffered by the business world is evidenced by the relative altitude of the prevailing money rates, so the recurrent jar and dislocation to which the capital markets are exposed appear in the frequency of variation of such rates from a normal range. If the upper limit of the normal range of the money rates in the United States be taken as six per cent., the presence of dislocation will roughly be evidenced by the frequency with which the prevailing rates exceed this limit. In the following table are shown for each year beginning with 1908 the number of weeks within which or some part of which the quoted rates of call and time money rose above six per cent.:

	'08	'09	'10	'11	'12	'13	'14	'15	'16	'17	'18
Call	0	0	0	0	10	5	0	0	5	2	0
Time 60–90 days	3	0	0	0	0	4	13	0	0	0	0
Time 4–6 months	3	2	19	0	15	40	17	0	0	0	11

The same general conditions as to monetary dislocation during the period of our belligerency are here disclosed as with respect to monetary strain. The capital market has been subject to greater disturbance than in the stagnant years succeeding the panic of 1907; but on the other hand it has apparently suffered less jar than in the more normal years that followed up to the outbreak of the war, a considerable part of this stability in more recent months being referable to the deliberate control of the loan market.

It remains to inquire in how far this absence of extraordinary strain and dislocation in the money market is specifically due to the use of certificates of indebtedness; in how far it is imputable to the credit mechanism developed by the Treasury, in conjunction with the Federal Reserve System,— a credit mechanism utilized indeed in certificate borrowing but neither peculiar to it nor any less available in connection with other borrowing methods.

In making hypothetical comparison between the two essential modes of war borrowing — exemplified in a direct long-term loan on the one hand, and a series of short-term certificate issues fundable into or payable out of the proceeds of a long-term loan on the other hand,— it should be assumed that payment is made whether for bonds or for certificates in cash or current exchange, that the banks of the

country are in each case under like state as to loanable funds (the relation of reserves to deposits), and that the absorbing capacity of ultimate investors is identical in the two instances. Under such conditions the advantages as to the money market of a series of short-term issues as compared with a single long-term loan would seem to be unmistakable.

In the case of the long-term loan there is likely to be strain upon the money market as funds are withdrawn from circulation or from deposit accounts in payment of bond subscriptions. In the case of the certificate issues there will be smaller although recurrent requisition upon the capital market in the first instance and earlier relaxation in the second. Not only will the total disturbance of a succession of small strains be less than the dislocation of a single great strain; but the withdrawal strain will be less protracted and more evenly distributed in the case of the short-term borrowing.

The foregoing assumes that bond subscriptions although nominally payable in installments may nevertheless be over-paid or paid in full at the first installment date at the option of the subscribers — and that this practice is largely followed, as has actually been the case in the Liberty Loan flotations. It is conceivable however that obligatory, that is "un-anticipatible" installment payments are required in connection with the bond issue and that bond receipts are promptly expended or are redeposited pending such expenditure by the Treasury in the banks. In such event the relative advantage of certificate issues as to strain upon the money market will be less. In the case of cer-

tificate borrowing the measure of relief is incorporated in the borrowing process itself; in the case of the long-term bond it is injected by the installment provision. If the proportion and interval of the installment quotas of the long-term loan correspond with the volume and succession of the certificate issues of the short-term borrowing, and if the redeposit of borrowed funds and the pace of public expenditure proceed alike — there would seem to be no difference possible as to monetary disturbance in the two cases. To impute any advantage in this particular to certificate borrowing, it would be necessary to assume that all or certain of these conditions as to the long-term loan do not obtain. The comparison in such case would be not between certificate borrowing and bond borrowing as such, but between certificates and a particular form of bond issues.

But even though the disturbance incident to certificate borrowing were less acute than in the case of a direct long-term loan, a very considerable degree of monetary strain and dislocation might be expected to attend certificate borrowing; whereas the striking fact with which we have to deal is that the money market has been singularly free from such disturbance during the period of our war borrowing. This seeming anomaly suggests the presence of some stabilizing element other than the borrowing device proper.

Our original analysis proceeded on the simple assumption that, whatever be the mode of borrowing, direct methods of distribution and absorption obtain; that is, that the recurrent certificate issues

or the successive long-term bond issues are absorbed directly by ultimate investors or are taken over by and paid for by the banks as intermediaries and simultaneously or subsequently distributed among investors; in short, that all payments are made in cash or exchange without the creation of additional credit.

It is possible however that the borrowing process may be accompanied by the creation of new bank credit against which no additional cash reserves need to be held. The installment quotas of the long-term loan or the principal sums of the certificate issues may in such case be paid to the Treasury by subscribing banks wholly or in part in the form of deposit credits, the banks eventually recouping themselves by the payments of ultimate investors, in cash or from out newly created deposit credits. Under such circumstances there will again be notably less strain upon the money market whether the Treasury effect its borrowings by short-term certificates or by installment payable bond issues. The elements of relief in either procedure will consist in the facts (1) that the strain of providing the amount borrowed is taken off the banks by their ability to create additional deposit credits against which no reserves need be held; (2) in the ability of the banks to create by rediscount clearance balances to meet government withdrawals; (3) in the ability of ultimate investors to meet the strain of bond payments by bank borrowings or from out existing resources augmented by the proceeds of public expenditure.

The possibility of avoiding monetary dislocation

and of reducing monetary strain in connection with war borrowing will thus be a consequence, not of the use of anticipatory certificates of indebtedness in lieu of direct long-term loans, but of an effective credit mechanism developed and utilized by the banks in connection with such borrowing. Without this mechanism there would be strain in the case of certificates just as in the case of loans. With this mechanism strain will be reduced in the case of certificates, and it would also be reduced in the case of loans. Not the particular borrowing device but the accompanying credit apparatus becomes the essential element in the situation.

Let us now seek for verification of these hypotheses in the nature of the credit facilities actually provided in connection with our war borrowing, as well as in the extent to which use has been made of such facilities.

The credit mechanism developed by the Treasury in conjunction with the Federal Reserve Board for the avoidance of jar and reduction of strain in the money market during the course of certificate borrowing has been made up of four elements: (a) redeposit of borrowed funds in depositary banks until required for public expenditure; (b) permissive payment by credit on the part of lending banks for certificates of indebtedness and Liberty Loan subscriptions; (c) exemption of government deposits held by depositary banks from reserve requirements; (d) rediscount facilities of member and non-member banks for themselves and their customers with the Federal Reserve Banks.

The measures taken have thus been of two general kinds: (A) those designed to enable the lending banks to make the necessary advances to the Treasury without corresponding curtailment of ordinary business accommodations, and (B) those designed to permit (i) the withdrawal of government deposits and (ii) the payment of subscriptions to the Liberty Loans, without strain upon the banks' resources and upon the general money market. In the first group have been the redeposit of borrowed funds, payment by credit and exemption of government deposits from reserve requirements. In the second group have been the rediscount facilities of the Federal Reserve Banks, extended and modified to meet the new exigency. The nature and growth of these policies may now be briefly reviewed:

(A) One of the important reforms which the Federal Reserve act of 1913 was designed to accomplish had to do with the deposit of government funds. Many of the advocates of the new system "believed that the practice of depositing government funds in thousands of banks scattered over the country was a vicious and expensive one" and desired that the new law should "make the federal reserve banks the depositories of practically all general funds, dispensing with the use of individual banks as depositories and ultimately with the independent treasury system."[13] As passed, the measure vested the Secretary of the Treasury with full discretionary powers in this respect. But it was expected that this officer "in the exercise of

[13] Kemmerer, "The A B C of the Federal Reserve System" (Princeton, 1918), p. 83.

the discretion granted him by the law, would deposit his funds in a large and increasing degree in federal reserve banks." The practice of the Treasury tended in this direction up to the entrance of the United States into the war. The actual course of events has been lately described with great clearness by the Governor of the Federal Reserve Bank of New York: [14]

> "The first deposit of government funds made by the treasury with the federal reserve banks was on September 4, 1915, when certain special deposits were made in a number of banks. Later, arrangements were made to have the collectors of customs and collectors of internal revenues in the twelve federal reserve bank cities deposit all of their funds in the federal reserve banks and as a matter of fact, for a long period prior to the passage of the bond act of April 24, 1917, which altered the status of public deposits, the federal reserve banks had been receiving the principal revenues of the Government outside of postal funds and had been paying a very large proportion of government checks and warrants. The limitation of this fiscal agency service in the collection of revenues and payment of checks to the twelve federal reserve bank cities was, of course, due to the inconvenience of extending these operations to places where federal reserve banks had not yet established branches. The plan therefore of actively employing the federal reserve banks as fiscal agents had been put into operation some time before the first bond bill was passed and was an important and very active part of the work of the reserve banks almost immediately after the arrangement was established."

A clause of the First Liberty Loan act contained the important proviso that all existing statutes with reference to the reserve required to be

[14] *Ibid.*, pp. 85-6.

kept by national banking associations and other members of the Federal Reserve System should not apply to "deposits of public moneys by the United States in designated depositaries." This provision was promptly construed to mean that such banks would not be required to maintain reserves against any deposits made by the United States in designated depositaries, regardless of the source of the funds deposited — without, however, such exemption applying to government deposits in the Federal Reserve Banks.[15]

The occasion for redepositing borrowed funds did not present itself in conjunction with the antebellum issue of certificates of March 31, 1917. The issue was taken in entirety by the Federal Reserve Banks, payment being made in the form of new or additional government deposits to the credit of the Treasurer's general account. A different procedure developed with the initiation of war borrowing proper, and the transfer of the lending function from the Federal Reserve Banks to the member and non-member banks. The First Liberty Loan act authorized the Secretary of the Treasury in his discretion to deposit in such banks and trust companies as he might designate the proceeds or any part thereof arising from the sale of certificates of indebtedness and bonds. The deposits were to be secured in the manner required for other deposits by existing law, and to bear such rate of interest and be subject to such terms and conditions as the Secretary of the Treasury might impose — with the restriction that the amount so deposited

[15] *Federal Reserve Bulletin*, June, 1917, p. 458.

should not in any case "exceed the amount withdrawn from any such bank or trust company and invested in such bonds or certificates of indebtedness plus the amount so invested by such bank or trust company." [16] Only moderate use was made of this privilege in connection with the four certificate issues in anticipation of the First Liberty Loan, 134 national and 100 state banks and trust companies in six Federal Reserve Districts making application and being duly designated as depositaries for such funds. [17]

The number of banks qualifying as government depositaries increased rapidly with the adoption of payment by credit in conjunction with the flotation of the First Liberty Loan. On May 14, 1917, the Secretary of the Treasury invited subscriptions to the First Liberty Loan.[18] Two weeks later announcement [19] was made in outline of the payment by credit plan — the introduction of which has heretofore been discussed and the immediate anticipation of which may be sought in the mode of payment used by the Federal Reserve Banks for the ante-bellum issue of certificates of indebtedness of March 31, 1917. In order "to avoid, even temporarily, a derangement of the money situation," the Secretary of the Treasury "earnestly requested" all incorporated banks and trust companies which had or expected to have payments to make for themselves or for others on account of subscriptions to

[16] Section 7.
[17] "Report of the Secretary of the Treasury, 1917," p. 25.
[18] Treasury Department Circular No. 78, of May 14, 1917.
[19] Treasury Department Circular No. 81, of May 29, 1917.

the loan, to acquire "as and when offered" Treasury certificates of indebtedness "to as large an amount as practicable and at least equal to 50 per cent. of the payments which they will have to make from time to time on account of subscriptions, and that they utilize such certificates of indebtedness in making payment." To encourage banks to make at least 50 per cent. of their payments in certificates of indebtedness, the Treasury announced that government deposits would thereafter be readjusted with respect to those using more or less certificates than this percentage, so as to remain in proportion with the amount of non-credit items actually used, provided that the amount of such deposits should not in any event exceed the cash and certificates used.

Beyond this, banks and trust companies duly qualified as depositaries having payments to make on account of subscriptions for $100,000 or more bonds might make payment upon such subscriptions on June 28, 1917, as to any amount not paid in certificates of indebtedness "by credit on their books to the account of the Treasurer of the United States." The amounts so credited were to be allowed two per cent. interest by the depositaries subject to withdrawal from time to time when and as required. The Treasury further announced that the limitation of the payment by credit plan to institutions subscribing $100,000 or more was made necessary by the brief time prior to July 2, 1917, for passing upon depositary qualifications, but added that as soon thereafter as practicable the proceeds of the loan would be redeposited with qualified

banks " in a proportion, yet to be determined, based upon the amounts of bonds of the Liberty Loan for which subscriptions are filed by and through them, and upon the amount of Treasury certificates of indebtedness acquired by them and utilized in payment thereupon on or before June 28."

The detailed procedure to be followed by subscribing banks and trust companies in making payment by credit for bonds of the First Liberty Loan or in receiving deposits of public funds in connection therewith was set forth by the Treasury on May 29, 1917.[20] Having duly qualified with the Federal Reserve Bank of its district as a depositary for a designated amount, the bank was required to open and maintain for the account of the Treasurer of the United States a separate account to be known as the " Liberty Loan Deposit Account." On or before June 28, 1917, each such depositary was required to transfer to the Liberty Loan Deposit Account " the amount then payable by it otherwise than in certificates of indebtedness on its own subscription and on the subscriptions of others made through it to Liberty Bonds," and to transmit certificates of advice as to such deposit to the Treasurer of the United States and the Federal Reserve Bank of the district. Thereafter the Federal Reserve Bank acting as fiscal agent of the United States credited the subscriber with the amount as a payment or part payment of the amount due on June 28, and the subscriber as depositary was charged with the amount of such deposit by the Treasurer of the United States.

[20] Treasury Department Circular No. 81.

Although the foregoing facilities were extended only to banks subscribing for $100,000 or more, the Treasury regarded it as "entirely admissible for banks and trust companies in any region or regions, by voluntary association among themselves to pool their subscriptions and payments" and to designate one of their number through which subscriptions should be made, and which should be, as between itself and the United States, regarded as the responsible subscriber and depositary. The Treasury restated its intention to in any event deposit funds with banks subscribing less than $100,000 as soon after July 2 as practicable, "as nearly as may be in proportion to the payments of each in cash and certificates of indebtedness upon subscriptions to the Liberty Loan." Under this authority, 1251 national and 780 state banks and trust companies made application and were designated as depositaries of public moneys, becoming thereby qualified to make payment by credit for bonds of the First Liberty Loan and to receive cash deposits of funds realized from the sale of bonds.[21]

Certificate borrowing was resumed in anticipation of the Second Liberty Loan without change in mode of payment or manner of deposit, other than that the number of special depositaries was further increased by 83 national and 72 state banks and trust companies which subscribed for the certificates of August 9, 1917. But with the next succeeding issue (August 28, 1917) payment by credit was generally extended, as we have seen, by administrative tolerance to certificate borrowing and this device con-

[21] "Report of the Secretary of the Treasury, 1917," p. 25.

tinued thereafter to dominate our anticipatory borrowing.

With the widening use of payment by credit in settlement of bond subscriptions and certificate borrowings, the qualification and designation of lending banks as government depositaries took on a new significance. Instead of serving in the traditional way as the device whereby funds withdrawn from the channels of trade and otherwise impounded could be immediately returned — a government depositary came to mean in practice a bank by or through which after proper qualification a short-term loan might be granted to the Treasury in the form of a retained deposit account, the loan being evidenced on the part of the bank by ownership of certificates of indebtedness, and the deposit being secured for the benefit of the Treasury by the hypothecation of such certificates or of other banking collateral.[22]

The Second Liberty Loan Act had again provided for the deposit of the proceeds accruing from the sale of bonds, certificates of indebtedness and war savings certificates in such incorporated banks and trust companies and subject to such terms and conditions as the Secretary of the Treasury might

[22] The distinction is clearly apparent in the later measures taken by the Treasury (May 29, 1918) to avoid unnecessary dislocation of funds incident to the payment of income and excess profits taxes, due and payable on June 15, 1918. Unexpended cash proceeds arising from the payment of such taxes were to be deposited through the Federal Reserve Banks with qualified depositaries, "as nearly, as may be, . . . simultaneously with the payment of checks drawn upon such depositaries, respectively, in payment of such taxes" (see p. 138, below). But specific notification was given that "payment of income and excess profits taxes cannot be made by credit."

prescribe. The reserve requirements of the national banks and the Federal Reserve System were as before made inapplicable to government deposits in designated depositaries.[23]

The administrative regulations subsequently issued[24] followed in the main the procedure used in connection with the First Liberty Loan. Application for government deposits was to be made by any incorporated bank or trust company in the United States to the Federal Reserve Bank of the district, and such applicant bank upon the recommendation of the Federal Reserve Bank might be designated by the Secretary of the Treasury as an approved depositary. In fixing the maximum amount of deposits sought, the applicant bank "should be guided by the amount of the payments which it expects to have to make, for itself and its customers, on account of allotments of such bonds and certificates" as well as by any statutory limitations upon the amount of deposits receivable by any one depositary. In making application, only the maximum amount of the desired deposit was required to be set forth and not the further particulars as to the amount of the prospective subscription and the amount and composition of the first installment payment — as required in the First Liberty Loan. As collateral security for such deposits, eight classes of securities were enumerated somewhat broader in scope but subject to approval and valuation by the several

[23] Section 8.

[24] Department Circular of October 6, 1917 (in "Report of Comptroller of the Currency, 1917," Exhibit I).

Federal Reserve Banks acting under the direction of the Secretary of the Treasury through local "securities committees." Each qualified depositary was required to open and maintain for the account of the Federal Reserve Bank of its district as fiscal agent of the United States a separate account for deposits to be made thereunder to be known as the "war loan deposit account."

Qualified depositaries were to be permitted to make payment by credit when due of amounts payable on subscriptions made by or through them for certificates and for bonds. To make payment by credit the depositary was required as theretofore to notify the Federal Reserve Bank of the district by letter or telegram to reach it on or before the date when such payment was due, and to issue a certificate of advice to such Federal Reserve Bank stating that a sum specified (in addition to all other amounts standing to its credit) had been deposited with such depositary for the account of the Federal Reserve Bank as fiscal agent of the United States in the war loan deposit account. Announcement was also made that the unexpended cash proceeds of the sale of any issue of certificates and bonds would be placed among the qualified depositaries "as nearly as may be in proportion to the subscriptions made by and through them for such issue." All deposits and withdrawals were to be made by the Federal Reserve Banks by direction of the Secretary of the Treasury.

Redeposit of certificate borrowings and of loan receipts continued to be made under the Treasury regulations of May 29, 1917, up to October 6, 1917,

after which the regulations of that date governed. Such deposits comprised with respect to bond subscriptions cash and credit items throughout; with respect to certificate borrowings, only cash items figured to any considerable extent until the issue of August 28, 1917, when payment by credit was first generally used. The deposits were distinguished as to source in the general account of the Treasurer as "Deposits in Special Depositaries: (a) Account of sales of certificates of indebtedness, (b) Liberty Loan Deposits"— until April 26, 1918, when the two accounts were merged in a general entry to which eventually redeposited receipts from income and excess profits taxes were added.

In connection with the early borrowings it had been necessary for the banks to make application and to be designated as depositaries each time they subscribed to certificates and bonds and desired to pay for them by credit. Subsequently a general qualification was permitted, whereby banks duly qualified as government depositaries might make payment by credit and might receive deposits on account of their subscriptions to any one or all of the various issues of bonds and certificates of indebtedness, without the necessity of new application and designation in each instance.

Stimulated in this manner, the number of government depositaries increased rapidly. At the close of business on November 13, 1917 — the eve of the flotation of the Second Liberty Loan — 1903 national banks and 1343 state banks and trust companies had been so designated, and a month later the annual report of the Secretary of the Treasury

reported a further increase to 2228 national and 1590 state banks and trust companies.[25]

With the systematic enlistment of the banking strength of the country in the heavier certificate borrowing anticipatory of the Third Liberty Loan, the number of government depositaries and the volume of payment by credit underwent corresponding development. The records of the Treasury Department are not kept in such manner as to permit without special compilation the actual number of depositaries on given dates, the lists being added to from time to time as banks are designated. At the latest date[26] for which figures have courteously been made available the total number of depositaries had increased to 5868, of which 3140 were national banks and 2728 were state banks and trust companies.

On April 10, 1918, the administrative regulations then in force as to redeposit of funds and payment by credit were renewed in preparation for the Third Liberty Loan, with certain interesting modifications. Qualified depositaries were permitted to use payment by credit — up to the amount for which each should be qualified in excess of existing deposits for amounts due and payable on subscriptions to bonds made by or through them; but such banks were enjoined, in order "to prevent unnecessary dislocation of funds," to make payment in certificates of indebtedness instead of by credit to the extent that they held certificates maturing on the

[25] "Report of Secretary of the Treasury, 1917," p. 25 (dated December 3, 1917).

[26] July 9, 1918.

date the payment on bond subscriptions was due at Federal Reserve Banks. This did not apply to payment for bonds for advance delivery, as to which payment by credit was permitted. On the other hand "to reduce the float as far as practicable," any qualified depositary might make payment by credit of amounts which its correspondent banks or trust companies would otherwise pay by check upon the depositary, and this might be done whether the depositary and the correspondent were located in the same District or, after telegraphic advice and ample notice, in different Districts.

On May 29, 1918, the foregoing provisions were extended in so far as applicable, to the deposit with qualified banks of money arising from the payment of 1918 income and excess profits taxes. Such payments might not be made by credit; but in lieu thereof the Treasury announced that receipts would be deposited "as nearly as may be,— simultaneously with the payment of checks drawn upon such depositaries, respectively, in payment of such taxes," and "as nearly as may be proportionately, having regard to the following three determining factors": (1) the actual withdrawals for tax payments from the respective depositaries, (2) the volume of tax anticipation certificates sold to and through such depositaries, and (3) the amount for which such depositaries respectively should be qualified in excess of existing deposits.[27]

The certificate borrowing in anticipation of the Fourth Liberty Loan was carried out in conformity

[27] Treasury Department Circular No. 92, amended as of May 29, 1918.

with existing procedure as to payment by credit and redeposit of funds; and the revision of the Treasury's administrative regulations on September 21, 1918, in immediate preparation for the flotation, effected no material changes. But the extraordinary increase of "war paper" in the portfolios of the Federal Reserve Banks, consequent upon the largely prevailing use of payment by credit in settlement of the certificates of indebtedness by subscribing banks, was giving concern to the Federal Reserve Board and to those responsible for the nation's financial affairs. On July 8, 1918, the Governor of the Federal Reserve Board addressed a letter, through the Federal Reserve Banks to every national bank, state bank and trust company urging among other things, in the interest of credit conservation and with a view to checking inflation and rising prices, that payment for certificates of indebtedness be made by subscribing banks in so far as possible from their own funds instead of through rediscounting at the Reserve Banks:[28]

"The Federal Reserve Banks will be prepared to place their facilities — directly or indirectly — at the disposal of such subscribing banks as may legitimately need assistance in taking their allotments. The Board, however, feels in duty bound to reiterate that the banks can render a greater service to the country in this connection, not merely by subscribing their allotments and by using the rediscounting facilities of the Federal Reserve Banks in making payments, but by providing the necessary funds for meeting payments for certificates of indebtedness purchased, by employing for this purpose the accretion of new deposits, and by utilizing the funds that may be made

[28] *Federal Reserve Bulletin,* August 1918, p. 686.

available by a judicious curtailment of credits asked for nonessential purposes."

Despite the intent of such injunction there was no apparent lessening of the pressure upon the financial institutions of the country to qualify as government depositaries and to employ credit in payment for subscriptions to the Fourth Liberty Loan. On September 26, 1918, the Federal Reserve bank of New York advised the banks of the District that:[29]

"If you have already received your designation as a depositary for Government funds, it will not be necessary for you to qualify again unless you desire to increase your present designation. If, however, you have not already applied and qualified as a depositary, we beg to express the hope that you will communicate with us at once in this regard so that you may receive such designation promptly and be placed in position to pay by book credit in full or in part for the bonds allotted to you, thus coöperating to the fullest extent in the Government's plan for effecting payments and stabilizing money conditions. Your immediate attention to this matter will be greatly appreciated."

In the same spirit the mandatory restriction as to the use of payment by credit, present in the Third Liberty Loan, was replaced by a discretionary provision in the administrative regulation issued as to the payment of subscriptions to the Fourth Liberty Loan:

"The right is reserved to require that qualified depositaries make payment by credit only to the extent that they can-

[29] *Commercial and Financial Chronicle,* October 19, 1918, pp. 1521–2. To such institutions as had not qualified as depositaries a "follow-up" letter was sent on October 11, 1918 (*ibid.*, p. 1522).

not make such payment in Treasury certificates of indebtedness maturing or called for redemption on the date the payment on bond subscriptions is due at Federal Reserve banks."

Starting thus from a familiar and thoroughly accredited procedure for reducing the monetary strain incident to public borrowing by a prompt restoration in the form of adequately protected redeposits of the funds so withdrawn from the channels of trade, the Treasury succeeded in organizing the banking strength of the country under the direction of the Federal Reserve Banks into a body of depositary banks the prime service of which has been the advance by or through such banks of deposit currency under the designation of government deposits in consideration of the delivery of certificates of indebtedness. Such banks are government depositaries in the sense that they retain the deposit credits which they have created until remitted to the Federal Reserve Banks for disbursement by the Treasury in the course of public expenditure. But their essential service is not the retention of such deposit credits, but their creation.

The certificate borrowing of the Treasury, in its first phase, thus exposed the money market to minimum strain and averted all likelihood of monetary dislocation. The government's monetary requisitions were adequately met by a fund of deposit currency, and the procedure employed — payment by credit, redeposit of funds and exemption from reserve requirements — replenished this fund as required or desired, by the emission of certificates of indebtedness without corresponding withdrawal or

curtailment of banking credit in other quarters. The deposit currency created in this manner is not unfairly described as fiat — not a deduction from an existing limited stock but the provision of a new additional supply with no limitation short of the remote check of an ultimate gold reserve. Where the mechanism creaked and some degree of pressure developed, it was because of the banks' failure, through conservatism or inertia to utilize adequately the facilities afforded — qualification as government depositary and payment by credit. There could obviously be no question of monetary strain or dislocation incident to a borrowing device when the accompaniment of that device was a mechanism which supplied, for the asking, a practically unlimited fund of the thing borrowed.

(B) Certificate borrowing exposes the money market to possible strain and dislocation at three successive stages: (1) in providing the credit or currency to be put at the disposition of the Treasury; (2) in meeting the withdrawal of government deposits in the course of public expenditure — assuming the borrowed funds or established credits to have been redeposited in the lending banks; (3) in paying subscriptions to the Liberty Loan in anticipation of which the certificates of indebtedness have been issued. We have seen how redeposit of borrowed funds, payment by credit and exemption of government deposits from reserve requirements have been competent to avert monetary strain at the first stage. It remains now to point out how the rediscount facilities of the Federal Reserve System

have prevented monetary dislocation at the second and third stages.

With the absorption of each successive issue of certificates of indebtedness by the lending banks, the Treasury has found itself in possession of the borrowed funds or credits in the form of government deposits held in an increasing number of national banks, state banks and trust companies, qualified as special depositaries.

As required in the probable course of public expenditure such funds have upon notification been remitted to the Federal Reserve Banks and thence disbursed in payment of public accounts. The actual procedure followed in making such withdrawals has been as follows:[30] About five days before the Treasury desires to withdraw funds from special depositaries each bank is notified by the Federal Reserve Bank of the amount that it will be expected to pay on account of its government deposits. On the day the payment is to be made the bank, if a member of the Federal Reserve System and not holding sufficient funds for that purpose, may discount its own note with the Federal Reserve Bank and use the funds so obtained to pay the amount required. In the case of a non-member bank the loan must be made through a member bank. The member bank's note may be secured by the certificates which had been previously used as collateral for its government deposits, but which have now been released by payment on this account. When these certificates mature or are used to pay for bonds

[30] Memorandum of Mr. Frederic H. Curtiss, of the Federal Reserve Bank of Boston.

of the next Liberty Loan, the member bank may substitute as security for its notes the notes of its customers secured in turn by the new Liberty Loan bonds. As payments are received from these customers, or as the bank obtains funds in other ways, it is enabled gradually to reduce the amount of its borrowings from the Federal Reserve Bank.

The periodic withdrawal of government deposits in the form of remittance of quotas to the Federal Reserve Banks might be expected to subject the resources of the depositary banks to recurrent strain — reflected in turn in general monetary disturbance. Eventually the funds so remitted and thereafter disbursed in government expenditure would, in part at least, find their way back into the banks; but the interval would be considerable enough to cause monetary discomfort.

In anticipation of this tendency the Federal Reserve Board took early steps to ensure that "there should be no disturbance in the money market and that interest rates should be normal and as free as possible from fluctuation." Accordingly before the subscriptions to the First Liberty Loan had closed and in anticipation of the Federal Reserve amendments of July 21, 1918, the Federal Reserve Board established a preferential rate of discount for notes of member banks secured by government obligations — certificates or bonds. Federal Reserve Banks were further authorized to discount for non-member banks, upon the endorsement of a member bank, notes secured by government obligations, whether made by the non-member banks themselves or by their customers, when the proceeds had been

or were to be used for carrying certificates or bonds. Beyond this a general assurance was given savings banks and trust companies that "the Board desired in every way to coöperate with them in avoiding stringency and that the Federal Reserve banks were prepared to extend through member banks every reasonable accommodation not inconsistent with law for the purpose of relieving any strain which might result from withdrawals of deposits for purchases of government deposits." [31]

This policy of preparedness involved important changes in discount schedules and rates, as follows: [32]

1. The establishment of a rate of three per cent. per annum for the discount at Federal Reserve Banks of notes of member banks running not longer than 15 days secured by Treasury certificates of indebtedness.

2. The establishment of a rate of discount at Federal Reserve banks of three and one-half per cent. per annum for customers' notes running up to 90 days, secured by Government obligations and indorsed by member banks, when such notes had been made for the purpose of obtaining funds for the purchase of Government obligations.

3. The authorization of Federal Reserve banks to discount for member banks, on behalf of non-member banks, notes of non-member banks or their customers, secured by Government obligations, for the purpose of obtaining funds with which to purchase United States bonds or notes.

4. The establishment of a one-day rate of from two to four per cent. at New York for the purpose of restoring to the market, funds temporarily withdrawn through Government loan operations.

[31] *Federal Reserve Bulletin,* June, 1917, pp. 425–6.

[32] "Fourth Annual Report of Federal Reserve Board," pp. 5–6.

These preferential rates have been from time to time increased with the progress of war financing and the increase of the interest rate upon war obligations. But the general principles of easy rediscount and preferential rates have been maintained. It has throughout been possible for member banks to obtain without net cost adequate accommodations for themselves, and for non-member banks acting through them, by the discount of paper collateralled by certificates of indebtedness or by Liberty bonds, and for customers to obtain similar accommodations from member banks on approximately the same terms as those granted by the Reserve Banks to the member banks.

This stabilizing effect has been further extended. Since the entry of the United States into the war the deliberate policy of the Federal Reserve Board has been to adjust its rates of discount to the rates of interest fixed by the Treasury for certificates of indebtedness and Liberty Loan bonds, and thereby "to keep rates of rediscount probably considerably lower than they would otherwise have been, and also to commit the system to the maintenance of rates which would otherwise have been altered from time to time, as circumstances seemed to require." In order to attain the restrictive effect upon credit expansion thus partially lost by reason of the adoption of a system of stable rates corresponding to the rates borne by government war obligations, the Federal Reserve Board has resorted to various expedients for "the rationing of credit"—refusal of credit to non-essential industries, restriction of credit to enterprises employing it for capital

accommodations, and reduction of capital requirements through restrictions imposed in coöperation with the War Industries Board upon supplies of fuel, material, labor power and transportation.[33]

The rediscount facilities, so provided, were sufficient to remove all possibility of banking disturbance or monetary dislocation in connection with the withdrawal of government deposits traceable to certificate borrowing. Such deposits represented the purchase by the banks of certificates, and were represented to a large extent by the presence in the banks' portfolios of government obligations — available by ready and economical hypothecation with the Federal Reserve Banks for the creation of credit balances against which these very withdrawals might be charged. In other words, the banks' government deposit liabilities on account of certificate borrowing could be at any time met by the creation of credit balances with its Federal Reserve Bank through rediscount of the evidence of such borrowing.

The question has been very acutely raised whether this stability has not been gained at too heavy a cost to the general banking situation. By encouraging Banks to transfer their war paper to the Reserve Banks and by tempting the business community to use war paper as a basis of commercial loans there has been a concentration of war paper in the hands of Reserve Banks, leaving the liquid paper in the portfolios of the member banks. The tentative

[33] Prof. H. Parker Willis, "Memorandum Prepared for the Committee on War Finance of the American Economic Association" (MS.).

conclusion arrived at by the most competent student of the subject has been that "while the policy of rationing is effective and probably has a more universal and effective influence than the mere raising of rates of discount, it is probable that a more rapid advance in rates conservatively handled would have exerted a desirable effect."[34]

Here again, however, it seems necessary in the present connection to confine our attention to the task immediately at hand and, waiving the problem of wider consequence, to recognize that the direct and immediate effect of the discount policy of the Federal Reserve Board has been to reduce, if not to avert, the monetary strain, normally incident to certificate borrowing.

The operations outlined above have been reflected in the course of the discount operations of the Federal Reserve Banks and more specifically in the course of such Banks' holdings of member and non-member banks, collateral notes secured by Liberty bonds or Treasury certificates of indebtedness, and of rediscounted customers' paper likewise secured.

In the first stage — certificate buying — the general use of payment by credit made it possible for depositary banks to acquire certificates without strain upon their ordinary resources for their own account and for their customers, as well as for non-member banks. To the extent that interior banks made payment by drafts on the reserve city banks, or to the extent that depositary or other banks or indi-

[34] Prof. H. Parker Willis, "Memorandum."

viduals elected to make direct payment there was reduction or depletion of reserves. But easy remedy lay in recourse to the Federal Reserve Banks for discounts or advances.

In the second stage — government withdrawals and Liberty Loan flotations — the outright reduction in consequence of such withdrawals of balances with the Federal Reserve Banks kept by the depositary banks as reserves and excess reserves, and the subsequent transformation of "government deposits free of reserves, into individual reserves, requiring reserves"— induced similar, though perhaps prompter and larger recourse to the Federal Reserve Banks for the repair of balances and reserves by the discount of member banks' notes secured by Liberty bonds and certificates of indebtedness, and to a minor extent by the rediscount of customers' paper likewise secured.

In the following table are shown the course of the discount operations of the Federal Reserve Banks, as well as the relative importance of the Banks' holdings of war paper during the period studied.

The obvious disclosure of the detailed exhibit is the increasing extent to which the member banks have availed themselves of the discount facilities of the Federal Reserve Banks — evidenced by the number of banks accommodated through discounts and rediscounts during each month since our entry into the war. Starting with 384 discounting members in April, 1917, the number rose to 900 in June, 1917, to 1574 in November, 1917, to 2693 in May, 1918, to 3462 in July, 1918, to 3671 in August, 1918. This increase has been rhythmical rather than uni-

	Total bills discounted during month	Total war paper	Ratio of war paper to total bills	Total bills discounted on last Friday of month	Ratio of war paper to total bills on last Friday	Number of banks discounting
1917			(millions)			
April	50.0	.....	.....	35.0	.....	384
May	91.4	5.1	5.6	49.5	.....	590
June	750.2	354.0	47.2	197.2	12.9	900
July	460.7	192.6	41.8	138.4	9.6	960
Aug.	220.8	30.4	13.8	147.3	10.7	990
Sept.	548.1	215.6	39.3	233.5	28.2	946
Oct.	2681.1	2262.4	84.4	397.0	52.6	1170
Nov.	3206.4	2585.6	80.6	756.3	66	1574
Dec.	892.2	238.8	26.8	680.7	43	1701
1918						
Jan.	868.4	392.0	45.1	627.6	50	1432
Feb.	762.4	399.1	52	509.5	53	1353
Mar.	759.1	307.6	40.5	583.2	52	1568
April	2178.4	1811.4	83.2	901.7	70.9	2100
May	3002.8	2517.0	83.8 [35]	896.4	62.8	2693
June	3161.9	2621.4	82.9	869.2	48.8	3021
July	3343.4	2469.4	73.9	1302.1	52.2	3462
Aug.	3762.3	3127.4	83.1	1428.1	62.7	3671
Sept.	4685.1	4079.6	87.1	1713.4	71.2	3464
Oct.	5903.9	5308.8	89.9	1546.1	70.9	3610

form. The Loan flotation months have witnessed the largest recourse to the Reserve Banks; the certificate borrowing months, a smaller but nevertheless considerable use thereof, and the interim months either an approximation to stability or outright reduction. The sequence has thus been as follows: During each period of anticipatory borrowing the number of discounting members has increased, the movement culminating in extraordinary resort to

[35] 84.8 in *Federal Reserve Bulletin.*

the Reserve Banks in connection with each Loan flotation. Thereafter the number of discounting banks has first declined and then tended to stability until the resumption of certificate borrowing has renewed the cycle. The whole movement has been cumulative and progressive, both in absolute addition and in relation to the total membership of the Federal Reserve System.

The discount operations of the Federal Reserve Banks reflect the same movement with even greater clearness. The volume of bills discounted which for the first three months of 1917 showed a monthly aggregate of 22 millions rose in April to 50 millions and in May to 91 millions. With the flotation of the First Liberty Loan there was precipitate increase in June to 750 millions. During July and August — with the maturing of outstanding certificate issues, the influx of Liberty Loan payments, and the progress of public expenditures — the member banks liquidated their indebtedness rapidly so that the volume of bills discounted for member banks and other Federal Reserve Banks dropped again to where it had been before the loan flotation. Upon the resumption of certificate borrowing and the withdrawal of government deposits in August and September the process of expansion was again renewed. Gaining rapidly in intensity in October with the flotation of the Second Liberty Loan a climax was reached in November, after which the recurrent liquidation set in. This liquidation proceeded more slowly from December on, and in February was practically overtaken by renewed creation of war paper — a condition which continued through

March and into April. Towards the end of April, the Banks' actual holding of bills discounted in immediate preparation for the Third Liberty Loan, rose above the 900 million point, and it remained substantially around that amount through May and June. With certificate borrowing resumed on a larger scale in anticipation of the Fourth Liberty Loan very much higher levels were attained in June, July and August, culminating in mid-October and followed by materially less liquidation than in earlier cycles.

In the remarkable growth of discount operations, "war paper"—member banks' notes secured by Liberty bonds and certificates of indebtedness, and customers' paper similarly secured—have played the all important part. Not only has the relative importance of war paper increased with the later progress of our war financing, but the net liquidation of such bills has been sensibly less. During the loan flotation months there has been related rather than sympathetic increase in the volume of discounted bills secured other than by war obligations. But aside from this, the movement of discounts traceable to commercial expansion has been within narrow range.

The preponderant part which war paper has come to play in the discount operations of the Federal Reserve Banks, and the absolute volume of such paper now resting in the Banks' portfolios are facts of the gravest importance in the nation's financial present as well as in its economic future. But tempting as are these aspects of the situation, their consideration extends beyond the scope of the im-

mediate inquiry. The two conclusions with which our present concern lies are: (1) the discount apparatus of the Federal Reserve Banks has effectively relieved the money market from strain during the period of war borrowing. The price paid for some measure of this relief may hereafter appear to have been excessive, but that it has been afforded is indubitable. (2) The equilibratory apparatus has not been organically related to certificate borrowing. Used in conjunction therewith the result has been an extraordinary freedom from monetary disturbance. But the stabilizing effect is imputable to the credit mechanism and not to the borrowing device. The same arrangements might have been used, with slight change and presumably with like success, in connection with ordinary funding operations.

THE PRICE LEVEL

V

THE PRICE LEVEL

THE relation of certificates of indebtedness to the price level is an aspect of the larger question of the effect of war borrowing upon economic and social well being. Even before our entry into the war this consideration had been much to the fore in fiscal discussion in this country and abroad, in connection with the outright disfavor of funding and the vigorous advocacy of an "all tax" policy in war financing, on the score that war loans make inevitably for inflation and rising prices.

It is possible to trace with some exactness the growth of the doctrine that war loans cause inflation.[1] Without returning to shadowy beginnings, the first explicit phrasing of the argument appears to have been made in 1915-1916 by an English economist of note, Mr. A. C. Pigou, professor of political economy in the University of Cambridge in two public lectures delivered in Cambridge, in articles contributed to the *Contemporary Review* and, more formally, in the little book on "The Economy and Finance of the War."

[1] See a paper by the writer "Do Government Loans Cause Inflation?" (in *Annals of American Academy of Political and Social Science,* January, 1918), from which the succeeding paragraphs are taken.

The preface of Pigou's book is dated October, 1916. In December, 1916, at the meeting of the American Economic Association held in Columbus, Ohio, an eminent American economist, Professor O. M. W. Sprague of Harvard University, presented a paper on "Loans and Taxes in War Finance" wherein quite independent of Pigou's exposition the inflationist argument against funding, foreshadowed in certain of the speaker's earlier writings, was set forth in detail. Admitting that "it is not absolutely inevitable that war finance based on borrowing should cause a general rise in prices," Professor Sprague noted that "it is significant, however, that whenever governments have resorted to this policy prices generally have manifested marked and continued upward tendency."

Professor Pigou's and Professor Sprague's views, spoken with some measure of scientific restraint, were received with attention if not assent within expert circles. They were given circulation and vogue by the lamentable Minnesota "memorial of American economists to Congress regarding war finance," an ill-fated attempt to determine congressional action upon the then pending war revenue bill by arraying the body of academic economists in support of such propositions as:

> "It may be necessary for a month or two at the outset to issue a limited amount of bonds, pending the collection of increased taxes, but beyond these, which might well be made repayable within a year, no necessity for bonds exists."

Thus far the inflationist doctrine had circulated as an academic hypothesis. In April, 1917, it was

unexpectedly translated into the higher altitude of state policy by a sentence of President Wilson's message to the special session of Congress:

> "It is our duty, I most respectfully urge, to protect our people so far as we may against the very serious hardships and evils which would be likely to arise out of the inflation which would be produced by vast loans."

In the nineteen months of our active participation in the war the inflation argument has undergone two interesting developments. In the first place, the argument has come to be used less in outright resistance to funding in war finance, of any kind and to whatever extent, but has been employed in much more rational way in restraint of an exclusive or disproportionate reliance upon funding and a corresponding avoidance or insufficient use of taxation.

In the second place, careful thought has made clear that inflation may easily but need not inevitably result from war-time borrowing, and cautious analysis has sought to establish the essential distinction. The actual process has been subjected to searching examination, and the following conclusions may be said to represent the present consensus of deliberate economic opinion: [2]

To the extent that loans are made ultimately from uninvested capital, from current income, from liquidated investments, or from current and future savings there need be no inflation. To the extent that loans are made by banks for their own account

[2] See Professor W. A. Scott's able paper "Bond Issues and the Money Market" in "Financial Mobilization for War" (Chicago, 1917).

by credit creation, or by individuals through bank loans in the nature of long time engagements rather than of installment purchases — inflation may result. The actual proportion of such non-inflating "savings loans" to the class of potentially inflating "credit loans" is in the war funding experience of the belligerent states undetermined. But whatever it be, there is no fixity attached and financial policy exercised through banking control can reduce the relative and even the absolute importance of inflation-causing borrowing. That an unwisely directed borrowing policy may take the form of "credit loans" is no reason why borrowing as a measure of war finance must be denounced lock, stock and barrel as inflationist in effect. The obvious alternative is, having first determined to what extent recourse shall or must be had to loans in a war programme, to plan such borrowing devices as will draw upon the fund of present and the source of future savings, without recourse to credit expansion.

All the foregoing is predicated upon the assumption that the war borrowing availed of is direct and final — in the nature of debt obligations, whether long-term bonds or short-term notes, emitted by the state and purchased forthwith by investing citizens and banks. If payment be made for such obligations directly or indirectly from out of loan-created deposit accounts, inflation may be expected to result. If payment be made out of current savings or out of existing deposit accounts without corresponding credit expansion in other quarters, there would seem to be no necessity for such inflation.

The current war loans of the United States have been neither as simple nor as direct as the above, and this in consequence of the use of certificates of indebtedness. The Treasury has been supplied in the first instance by anticipatory borrowings in the main from the banks and to a limited extent from investors, and such temporary obligations have at intervals been liquidated out of or funded into issues of long term bonds bought in the course of intensive flotation campaigns by investing citizens and banks. This procedure — conveniently described with respect to its dominant feature as " certificate borrowing "— presents much more complex possibilities as to resultant inflation. The certificates of indebtedness may be paid for from out of savings or from out of loans, and the same alternatives exist with respect to the bond issues by which or from the proceeds of which the certificates are eventually extinguished. In short, new variables enter into play and the outcome becomes more than ever dependent upon elected policies. The conclusions which might be expected to result from these more intricate conditions might be summarized briefly as follows: If the certificates are taken over by the banks and by investors without the creation of additional deposit currency, and if the funding bond issues are thereafter subscribed and paid for from out of savings, there will be no loan-created inflation. To the extent that any of these assumptions are unrealized, the possibility of such inflation is present.

Before passing to our direct concern — the manner in which, if at all, the use of certificates of in-

debtedness has brought about inflation — it is worth while to refer to the current unsettlement of opinion as to what constitutes inflation. During the past two years there has raged in English financial circles, technical and academic, a controversy recalling in variety and intensity the classic bullion debate of a century ago, not only as to whether inflation really existed in England, whether it was imputable wholly or in any part to public borrowing and whether this consequence if existent was avoidable or inevitable — but more fundamentally as to what inflation really is. Seemingly driven to scientific desperation by the variety of current meanings attaching to the word, an English economist of note has lately declared [3] "there is obviously much to be said for abandoning the term inflation altogether, and so dispensing with the need for any definition."

Similarly in this country. The old fixity of concept and definition has perceptibly yielded, more conspicuously indeed among practical financiers and financial administrators than among academic economists. In banking circles there is disposition to view the matter as essentially one of banking solvency, and to maintain that [4] "the test of inflation in the credit structure is the relation of cash holdings to deposits." So too it is perhaps not without significance that in the annual report [5] of the Federal Reserve Board the term "expansion" has

[3] Pigou, "Inflation" in *The Economic Journal,* December, 1917, p. 490.

[4] "Is There Credit Inflation in the United States?", circular letter of Guaranty Trust Company of New York, March 4, 1918.

[5] January 15, 1918.

completely replaced "inflation"— without, however, in any wise affecting the soundness and sobriety of counsel given by individual members of the Board in public addresses and in semi-official reviews of the financial situation.[6]

Fortunately, it is not requisite for our purpose to determine this question of terminology. Our concern lies not in establishing the title of the disorder but in ascertaining its presence and in identifying its cause. To debate dialectically as to what constitutes inflation, with a view to eventually concluding that that which we have is or is not inflation — is to drag a red herring across the trail. The specific problem before us is to ascertain whether, and if so to what extent, war borrowing or rather a particular mode of war borrowing is the direct cause of rising prices, a phenomenon which in accepted philosophy will follow, other things being equal, an increase in the circulating medium. There is indeed a small group of political economists and practical financiers who deny the validity of the quantity theory of money upon which the foregoing statement rests, and to these the analysis upon which we are about to enter will prove unconvincing. But the consensus of opinion has long been, and at the present time more than ever is in definite affirmation of the doctrine that with no counteracting increase

[6] Thus Professor A. C. Miller's "War Finance and Inflation" in *Annals of American Academy of Political and Social Science,* January, 1918; Mr. Paul Warburg's "Appeal for Thrift to Counteract Increasing Inflation" in *Federal Trade Information Service,* April 25, 1918; and the repeated editorial utterances of the *Federal Reserve Bulletin* (see, for example, November, 1918, pp. 1047–8).

in the mass of commodities or in the frequency of transfers or any reduction in the velocity of circulation, an increase in the volume of money or checkable deposits over a theretofore normal supply will be followed by a rise in general prices.[7]

This increase in the circulating medium has been called inflation, and the inquiry has been phrased as "Do government loans cause inflation?" If, however, the term inflation be given — wisely or unwisely — an altered signification, the result is not to change the quest but merely its title. Instead of seeking to determine whether war borrowing causes inflation, we should undertake to ascertain whether such operations bring about a rise in general prices — it being understood that this increase is the consequence, other things being equal, of an increase in the volume of money and credit.

The monthly index numbers of wholesale commodity prices and of retail food prices in the United States in the calendar years 1915, 1916, 1917 and 1918 as compiled by the U. S. Bureau of Labor have been as follows:

[7] Thus the Federal Reserve Board has lately defined inflation as "the increase of current purchasing power, whether in the form of actual currency or in the form of credit — faster than the volume of available goods" (*Federal Reserve Bulletin,* November, 1918, p. 1048). With this compare Professor Kemmerer's succinct statement: "Inflation means a redundancy of money or circulating credit or both that results in rising prices. It occurs when, at a given price level, a country's circulating media — money and credit instruments of exchange — increase relatively to trade needs." ("Inflation and the Government Fisc," prepared for Committee on War Finance of American Economic Association; see also "Inflation" in *American Economic Review,* June, 1918.)

Month	Wholesale	Retail Food
1915 —	[1913 = 100]	
January	98	103
February	100	101
March	99	98
April	99	99
May	100	100
June	99	100
July	101	100
August	100	100
September	98	101
October	101	103
November	102	104
December	105	105
1916 —		
January	110	107
February	111	106
March	114	107
April	116	109
May	118	109
June	118	112
July	119	111
August	123	113
September	127	118
October	133	121
November	143	126
December	146	126
1917 —		
January	150	128
February	155	133
March	160	133
April	171	145
May	181	151
June	184	152
July	185	146
August	184	149
September	182	153
October	180	157
November	182	155
December	181	157

Month	Wholesale	Retail Food
1918—	[1913 = 100]	
January	185	160
February	187	161
March	188	154
April	191	154
May	191	158
June	193	162
July	198	167
August	202	171
September	207 [8]	178

It appears from the above that wholesale prices began to rise in the mid-summer of 1915, that the upward movement continued steadily through the first six months of 1916, that thereafter it proceeded with great violence until the summer of 1917 when, after a period of stability tending to slight recession, the upward tendency resumed early in 1918 and thereafter developed with increasing momentum. In the case of retail prices there has been the customary "lag." The earlier, more gradual rise continued through the autumn of 1916, the sharp upward movement extended for some months beyond the mid-summer of the same year, and the period of comparative stability and recession continued through the early spring of 1918.

Concentrating attention upon that period of our war borrowing for which data are at this time available — May, 1917, through September, 1918 — it appears that for the first seven months (May–December, 1917) wholesale prices were subject to narrow fluctuations and underwent no eventual change, and for the second nine months (December, 1917 —

[8] Preliminary.

September, 1918) prices rose — on the whole, with but slight arrest and with respect to the entire interval with considerable precipitancy. As to retail prices, the stable period began later (October, 1917) and continued later (April, 1918).

The facts that we are accordingly called upon to interpret are that in so far as reliance is to be put upon the validity of the Bureau of Labor index number, (1) commodity prices remained relatively stable during something less than the first half of our war borrowing period and (2) such prices advanced sharply during something more than the second half. Phrased somewhat differently, prices did not rise in the seven months from the first issue of certificates in anticipation of the First Liberty Loan to the resumption of certificate borrowing in anticipation of the Third Liberty Loan; and on the other hand, prices did rise materially in the succeeding nine months from such resumption through the certificate borrowing in anticipation of the Fourth Liberty Loan.[9]

(1) It would be unwarranted to draw any conclusion as to the effect of war borrowing upon general prices from the failure of prices to advance in the seven months within which occurred the ten certificate issues in anticipation of the First and Second Liberty Loans, as well as the actual flotation of the Loans. It is generally agreed that such an advance may be expected — other things remaining unchanged — to follow any large increase in the supply of money and credit. But even among the strictest adherents of the quantity theory of money, there is

[9] See p. 60 above.

no common opinion as to the period of time which must elapse before the effect of an increase in the volume of currency becomes apparent in rising prices. A recent study [10] of English experience in this particular made by Professor J. Shield Nicholson of the University of Edinburgh led to the conclusion that the period in which the increase in currency worked itself out in higher prices — happily described as "the period of incubation" was about five months. A similar analysis [11] of Canadian experience by Mr. W. C. Clark of Kingston, Ontario, established the period of incubation for that country to be six months — a difference "one would expect in a country less densely populated and less highly industrialized, as Canada is." For the United States, Professor Irving Fisher, examining the figures up to the time of our entry into the war, finds that after the middle of 1915 "a change in price level follows a change in total money after a lag of about two months," [12] and in a later résumé this is restated as "a lag in this country of less than two months." [13]

It is not unlikely that as fuller data become available Professor Fisher's computation will indicate a longer lag than the original estimate, as did appar-

[10] "Statistical Aspects of Inflation" in *Journal of the Royal Statistical Society,* July, 1917.

[11] Clark, "Inflation and Prices" in *Journal of the Canadian Bankers' Association,* January, 1918.

[12] "The Equation of Exchange for 1916" in *American Economic Review,* December, 1917, p. 937.

[13] "Some Contributions of the War to our Knowledge of Money and Prices" (abstract) in *American Economic Review,* Supplement, March, 1918, p. 258.

ently Professor Nicholson's.[14] Both theoretical exposition and inductive verification of the quantity theory of money have been largely concerned with what might be described as progressive movements, that is to say, with long time periods in which the volume of credit or currency increased in the one case or diminished in the other — not, it is true, at uniform pace but without recurrent reversal. But in connection with certificate borrowing, we have to do with at least the possibility of a rhythmical short-time movement — an expansion of credit during the period in which government deposits created by credit-paid certificate issues are liberated by public expenditure, and a possible contraction of credit during the period in which credits so dispersed are applied to the reduction of commercial loans and eventually absorbed in reserves or investments. The question thus arises — not heretofore discussed, so far as the present writer is aware — how long a period of currency inflation is necessary to produce a corresponding rise in prices. Reverting to useful medical parallelism, allowance must be made for a "period of exposure" or even a "period of invasion" which precedes the "period of incubation."

If it be assumed that since our entry upon a régime of active war financing the period of incubation in the United States has been at least as long in the United States as that in England, the relative stability of prices for the first seven months would seem to be in a measure accounted for. It is reasonable to

[14] Compare *American Economic Review*, December, 1917, p. 938, with *Journal of the Royal Statistical Society*, July, 1917, p. 487.

infer that any process of currency expansion directly associated with the issue of certificates of indebtedness would begin to operate with the completion of payments by subscribing banks. Upon this basis, the assumption of a five months period of incubation would lead us to expect that any such effect exerted upon the price level by the certificates issued in anticipation of the First Liberty Loan would not have become apparent before December, 1917, and that any such effect exerted by succeeding issues of certificates would not have become apparent until thereafter.

But there is a further reason, although of a very different kind, why the possible price raising effect of an increase in the volume of money should not be apparent in a rising index number during the first seven months of our war borrowing even though the period of incubation were less than that assumed. Under the stress of war conditions the United States has pursued to an increasing extent the policy of fixing by statute and by administrative order or of otherwise influencing or determining the maximum prices which may be paid for a large body of commodities, a considerable number of which figure in the computation of the index number.

The price-fixing activities of the United States Government began practically with the passage in August, 1917, of the Food and Fuel Act.[15] Through the powers conferred by this law upon the

[15] For the following particulars I am indebted to a memorandum prepared by Dr. Leo Wolman of the Johns Hopkins University, at present associated with the Price Section, Division of Planning and Statistics, of the War Industries Board.

President and delegated by him to the Food and Fuel Administrations, the prices of basic foods and of coal fell under regulation at the close of August, 1917. By presidential proclamation on August 23, 1917, the price of bituminous coal was fixed, and by a similar proclamation issued August 30, 1917, the price of wheat was regulated. With the increase in the military program and a corresponding increase in the volume of government purchases, the necessity of a more general control of prices soon became apparent. From September, 1917, to the summer of 1918, the list of price-controlled commodities was extended to include most of the basic materials of industry, with the exception of raw cotton. The prices of copper and iron and steel were fixed in September, 1917; wood chemicals and timbers in December; zinc in February, 1918; aluminum in March; rubber, hides and skins, and wool in May.

The presence of price-fixed commodities among the index number commodities obviously tends to invalidate the reliability of the index number as typical of the general price-movement and thus to obscure the price-changing effect of alteration in any of the magnitudes that enter into the equation of exchange. If the proportion of price-fixed commodities in the index-number table is relatively greater in number or weight than the proportion of price-fixed commodities relative to all commodities, the index-number will show a smaller rise than general prices have suffered.

The influence of price fixing upon the movement of commodity prices has recently been studied by the Price Section, Division of Planning and Sta-

tistics of the War Industries Board, with preliminary results of the utmost significance.[16]

Of the 271 commodities used in the study as representing the commodities figuring in the Bureau of Labor Statistics index number of wholesale prices, 78 of the series are for commodities which by September, 1918, had come under price control. The relative prices, weighted and combined, of the controlled commodities as compared with (a) the uncontrolled and (b) both controlled and uncontrolled commodities are shown in the following table. Prices during the twelve months before price-fixing began (August, 1916, to July, 1917) are taken as a base from which to measure the relative changes.

1917	Controlled	Uncontrolled	All
May	122	113	117
June	123	116	119
July	123	117	119
Aug.	119	118	119
Sept.	111	121	117
Oct.	103	125	116
Nov.	104	127	117
Dec.	104	126	116

So analyzed, the seeming stability of the Bureau of Labor index number during the first period of our war borrowing resolves itself very largely into the masking effect of price control. The result of such control was not merely to prevent any rise in the prices of the commodities involved, but actually to effect a material reduction — enough at least to counterbalance the upward movement of the uncon-

[16] Bulletin No. 10 (December, 1918) on "Fluctuations of Controlled and Uncontrolled Prices," prepared by Dr. W. W. Stewart.

trolled group, and to leave the combined price of "all commodities" practically stationary. It is true that this method of comparison, "in order to make continuous series of index numbers which are comparable, necessarily treats some commodities as controlled before they were actually under control." But allowance for this discrepancy, while affecting the extent of fluctuation, will not change its general character.

(2) Since December, 1917, prices have risen — at first considerably; more recently, with some approach to violence, and without any symptom of prospective arrest or reversal. Wholesale prices were 14.3 per cent. higher in September, 1918, than in December, 1917, as compared with no advance whatever for the preceding seven months; the corresponding percentage for "lagging" retail food prices was 13.4 per cent. as compared with 3.9 per cent. for the earlier period.

This advance might hypothetically be imputed to an increase in the volume of currency — at least to the extent that the repressive factors (a period of incubation and price-fixing activity) operative in the preceding months should after December, 1917, have ceased to the same extent to mask or counteract the price-rising tendency.

As to the period of incubation: By reasonable allowance a sufficient time would have elapsed by December, 1917, to permit an increase in the volume of currency associated with our war borrowing to begin showing itself in higher prices. Continuation of this currency expansion with the progress of certificate borrowing and notably with the increasing

resort to payment by credit after August, 1917, would accordingly be reflected in a continuous rise of prices.

As to the Government's price-fixing activity: In the first five months of 1918 the list of price controlled commodities was steadily extended. The price of zinc was fixed in February; aluminum in March; rubber, hides and skin, and wool in May. Up to June, 1918, little attempt had been made to regulate the prices of goods in higher stages of fabrication, control being exercised primarily over the prices of raw materials or of materials in the early stages of fabrication. On June 25, 1918, however, the price of harness leather was fixed, followed by the control of the prices of a large number of classes of cotton goods, beginning on July 1, 1918; and later by a form of control of the retail prices of shoes. This shift in the character of price control in June, 1918, is apparently indicative of a feeling in the Price-Fixing Committee of the War Industries Board that the regulation of the prices of raw materials was not in itself sufficient to retard advances in the prices of fabricated goods.

The actual effect of the public control of prices on the level of prices in this country is, of course, difficult to evaluate because of the large number of factors operating on the prices of particular commodities. With respect to raw materials and of materials in the early stages of fabrication regulation seems in the main to have been successful in checking any further upward tendency in prices. The effect of control of the prices of raw materials on the

prices of the finished products seems, on the other hand, not to have been very great. Of the ten groups of commodities whose prices are carried by the Bureau of Labor Statistics, the largest increases in price from August, 1917, to August, 1918, are found in the cloths and clothing, and housefurnishings' groups. In both groups, finished products predominate. Some of these finished products, however, were made of raw materials which were themselves not regulated, so that the rise in the price of the fabricated goods was due partly to the rise in the price of the raw material.

The analysis of fluctuations of controlled and uncontrolled prices, to which reference has already been made, may be profitably examined in this connection:

1918	Controlled	Uncontrolled	All
Jan.	106	128	119
Feb.	107	129	119
Mar.	107	129	120
Apr.	108	133	122
May	109	133	122
June	109	135	123
July	111	140	128
Aug.	110	145	130
Sept.	112	151	134

It appears, in striking contrast to the preceding period, that the prices of controlled commodities not only showed no decline but actually registered an increase — traceable as far back as October, 1917. This rise was, however, much less pronounced than in the case of the uncontrolled group, and to that extent the upward course of the "all

commodities" movement was restrained. But as compared with the effect of the earlier price fixing the difference is marked.

There is thus some evidence to support the hypothesis that, just as the effective price fixture of basic materials may have retarded the rise in commodity prices in the first half of our war financing, so the increase in the prices of fabricated goods in consequence of unattempted or ineffective price fixture may have contributed to the rise of the index-number of commodity prices in the second half. Indeed, it has even been suggested that an increase in the volume of currency might be expected to make its presence felt, even in face of a group of price fixed commodities, by "a geyser-like ebullition" with respect to the prices of general commodities not so controlled. Until however the detailed study of the effect of price fixing on prices now in process in the Price Section of the Division of Planning and Statistics of the War Industries Board shall have been completed, any final conclusion upon this matter is impossible.

It remains to inquire whether the Treasury's operations have been directly productive of that abnormal increase in the circulating medium — credit and currency — which might be counted upon to cause a rise in general prices. Specifically this may be phrased as the query: Have the issue and use of certificates of indebtedness been the direct cause of an extraordinary expansion of credit or increase in currency?

The absolute theory of short-term borrowing in

relation to banking credit can be briefly set forth, both as to the procedure which will and that which will not result in credit expansion or inflation. Let us assume that the Treasury uses certificates of indebtedness as the borrowing device and employs the Federal Reserve Banks as its fiscal agents. The loan is made by member banks and other financial institutions subscribing to the issue of certificates on their own behalf or for their customers, and remitting funds or transferring credits in payment to the Federal Reserve Banks. Such remittances are thereafter either held by the Federal Reserve Banks as government deposits until disbursed by the Treasury, or are redeposited with the subscribing banks duly qualified as special depositaries until required, when they are again remitted to the Federal Reserve Banks for subsequent disbursement. Against such government deposits no reserves need lawfully be held.

Under the simplest conditions payment for certificates will have been made by a subscribing bank in cash or in current exchange. In so far as such payment is effected without any increase in the cash holdings of the bank or any reduction in the ratio of cash holdings to deposits, there will obviously have been no increase in the volume of credit. With respect to subscriptions on its own account, a part of the bank's resources heretofore loaned to private borrowers will now be loaned to the government. With respect to subscriptions on account of customers there will be a reduction of commercial deposits and an increase in government deposits. The total volume of deposits subject to check will

not have increased; but a part of the deposits heretofore to the credit of individuals will now stand to the credit of the Government. Only in the event of customers making payment in cash or of reserves being in the first instance in excess of lawful requirement is the reduction of commercial deposits in consequence of certificate payments by customers likely to be repaired by further discounts, and the volume of deposits to be increased. Nor is there likely to be any inflation incident to the liberation in the course of public expenditure of government deposits of this kind. The credits so dispersed will run their course through ordinary banking channels, eventually into loan reductions, deposit increases, currency withdrawals — but only to a compensatory or alternative degree. Upon the maturity of the certificates the Treasury, presumably put in funds by the receipt of tax revenues or the proceeds of funded loans drawn from deposits or from circulation, will discharge its debt to the banks and to investors, thereby restoring deposits and circulation to the prior state.

The assumption that the banks pay for certificates entirely in cash and current exchange is however unreal to a very great extent. Credit will have been used, wholly or in part, and the results that may be expected are notably different. The subscribing banks will in such case make payment for certificates in the form of a book credit or government deposit. The actual technique will include qualification by the subscribing bank as a government depositary by the hypothecation of approved collateral, and the transaction will be effected throughout by the Federal Re-

serve Banks as fiscal agents. But the essence of the operation will be the creation of additional credit by the subscribing bank. The subscribing ability of a bank will be limited — in the absence of reserve requirements against such government deposits — only by the extent that it must be in a position to meet withdrawals. If the bank is able by rediscounting to supply a credit balance at the Federal Reserve Bank or to secure Federal Reserve notes to meet currency withdrawals, there is not even this restraint. The first step of the borrowing process — in so far as the banks make payment for certificates by credit — is the creation of an additional volume of credit in the form of government deposits.

The course of such newly created credits, when liberated in process of government expenditure, presents the same variety of possibilities heretofore noted. Paid over to the public creditors (munition makers, ship-builders, etc.) in the form of the Treasury's drafts upon its balances, they may be used by the recipients to discharge maturing loans, to swell deposit accounts or to obtain additional circulating medium. In the first event the inflation effected will be limited to the period within which the government deposits were dispersed; in the other cases there will be a continuing effect.

The final stage in the operation will be the tender of some part of the certificates in settlement of bond subscriptions, and the liquidation of the remaining part at maturity (unless called for prior redemption) from out the proceeds of taxes, Liberty Loans or refunding certificates. If these new proceeds are obtained from savings the result will be (a) de-

flation, if liberated government deposits have gone to swell commercial deposits, or (b) actual contraction, if such liberated deposits have been used to reduce existing loans. On the other hand, if the funds with which the maturing certificates are redeemed are supplied by further borrowing, the inflation of credit will continue — to the original amount if the liberated deposits have been absorbed in loan repayment; to a correspondingly greater amount, if they have been dispersed in increased commercial deposits.

Let us turn now to the actual movement of credit and currency during the period of short-term borrowing. In the following table are shown (a) the nominal amount of certificates of indebtedness issued each month; (b) the volume of government deposits in the Federal Reserve Banks and in the special depositary banks on the last day of each month; (c) the volume of individual deposits subject to check in the national banks at the "call" dates; (d) the volume of loans and discounts of the national banks at the "call" dates; (e) the amount of money in circulation at monthly intervals.

The volume of certificates discloses the three phases in short-term borrowing, recurring in cyclical succession: (1) a period of increase or active issue in anticipation of a funded loan, (2) a period of constancy or suspended issue during the flotation of the loan, (3) a period of reduction after the flotation of the loan, by funding into the bonds of the loan or by redemption upon or before maturity from out the proceeds of the loan. With the progress of our bor-

	Certificates issued during month (nominal)	Government deposits in special depositaries and Federal Reserve Banks (last day)	Individual deposits subject to check of national banks (call dates)	Loans and discounts of national banks (call dates)	Money in circulation (first day of succeeding month)
	[000,000 omitted]				
1917—					
April	268	111	....	....	4736
May	400	206	6627	8751	4731
June	200	1020	6560	8818	4850
July	none	466	....	....	4852
August	550	492	....	....	4799
September	700	460	6915	9055	4820
October	1070	1016	....	....	4924
November	691	1822	7208	9535	5085
December	none	797	7497	9390	5120
1918—					
January	891	828	....	....	4965
February	1074	987	....	....	5092
March	653	923	7281	9139	5240
April	1140	874	....	....	5318
May	183	1414	7309	9260	5246
June	839	1500	7161	9620	5384
July	1344	1412	....	....	5559
August	772	995	7465	9493	5621
September	1264	867	....	....	5790
October	641	1702	....	....	5943

rowing these phases have tended to overlap and to be further complicated by the issue of tax anticipation certificates.

Examining the above table in connection with the data as to the successive certificate issues elsewhere set forth (page 26) it appears that in the first cycle, the nominal volume of certificates issued increased

from \$50,000,000 on April 24, to \$918,205,000 on June 9; remained fixed at \$918,205,000 from June 9, to June 29, and declined from June 29, until completely redeemed by July 30. In the second cycle, resort was had again to certificates on August 9. The amount issued rose uninterruptedly from \$300,-000,000 to \$2,320,493,000 on October 24; remained fixed at that amount from October 24 to November 15, and declined with maturity and redemption of issues from November 15 to December 15. In the third cycle, the volume of certificates rose from \$400,000,000 on January 22, 1918, to \$3,012,085,-500 on April 22, 1918; remained constant from April 23 to May 9, 1918, at \$2,612,085,500; and declined thereafter until complete maturity on July 18, 1918, overlapping the resumption of certificate borrowing in anticipation of the Fourth Liberty Loan. In the fourth cycle, certificate borrowing began on June 25, 1918, with an issue of \$839,646,500 and continued with fortnightly issues until October 1, 1918, at which time there had been emitted \$4,659,-820,000 with maturities extending up to January 30, 1919. There were no emissions immediately before nor during the flotation of the Fourth Liberty Loan in October, 1918, after which followed the usual funding and redemption.

The volume of government deposits in the banks and trust companies designated as special depositaries and in the Federal Reserve Banks reflects the course of certificate borrowing, with the modification at intervals due to Liberty Loan and income and excess profits tax payments and to the progressive increase of withdrawals for public expenditure and

for advances to the Allies.[17] From our entry into the war through April, May and early June the volume of such deposits rose moderately as certificate borrowing progressed until the extraordinary increase in late June due to income tax receipts and the Liberty Loan overpayment. This plethora diminished in July and early August, up to the resumption of certificate borrowing in mid-August. Thereafter, the volume of government deposits followed closely the course of such borrowing, rising with each issue and declining in the intervals but mounting with the heavier issues of late October up to the flotation of the Second Liberty Loan. The enormous overpayment of November 20 dominated the situation until the end of the calendar year, after which the systematized certificate borrowing in anticipation of the Third Liberty Loan more than kept pace with heavier expenditure. The Treasury's deposits rose from late January through February, March and April until the Third Liberty Loan flotation. The large overpayment of the May 28 Loan installment again resulted in distention, and this had not entirely passed away before the Treasury's continuing policy of a mounting balance induced recourse to certificate borrowing. From June 25 to October 1, 1918, the Government's deposit account exhibited the usual crest and hollow form incident to certificate borrowing, modified to some extent in mid-August by an apparently deliberate reduction of the Treasury balance to a lower level.

The movement of bank credits in relation to cer-

[17] Compare the course of the daily "net balance" of the Treasury during the period under review (frontispiece).

tificate borrowing can be traced with a moderate but by no means conclusive degree of success from the data as to the condition of the national banks available at the nine "call" dates: May 1, June 20, September 11, November 20 and December 31, 1917, and March 4, May 10, June 29 and August 31, 1918. Of these dates no less than three — June 20, 1917, November 20, 1917, and May 10, 1918 — fall in the midst of Liberty Loan flotations, with accompanying complexity and exception in banking operations. The result is to impair the serviceableness of the call data in six out of the eight intervals, only the spans December 31, 1917 — March 4, 1918, and June 29 — August 31, 1918, being free from such disturbance. Moreover, three of the call dates — September 11, 1917, June 29, 1918, and August 31, 1918, are "mid-period" rather than terminal, with the result of making the intervals to which they belong less serviceable for the present purpose. This affects both issue and redemption periods. As to the issue periods: (1) on September 11, 1917, of the six issues of certificates aggregating $2,320,493,000 in anticipation of the Second Liberty Loan, only two issues, aggregating $550,000,000 had been emitted; (2) on August 31, 1918, of the seven issues of certificates aggregating $4,659,820,000 in anticipation of the Fourth Liberty Loan, only four issues aggregating $2,760,141,500 had been emitted and of these one issue to the amount of $839,646,500 had been emitted before the preceding call date (June 29, 1918), in comparison with which the inquiry is to be made. As to redemption periods: with respect to June 29, 1918, of the six issues aggregating $3,012,-

085,500 in anticipation of the Third Liberty Loan, two issues aggregating $1,140,153,000 matured at subsequent dates while the first two issues aggregating $900,000,000 had matured before the preceding call date.

Subject to these limitations, the three intervals May 1–June 20, 1917, December 31, 1917–March 4, 1918, and June 29–August 31, 1918, may be used to study the issue periods of the first, third and fourth cycles respectively. For the issue period of the second cycle there is no such aid — September 11, 1917, being a "mid-period" date. The material is scantier with respect to the redemption periods. The interval November 20–December 31, 1917, serves adequately for the second cycle. But for both the first, June 20–September 11, 1917, and the second cycle, May 10–June 29, 1918, we have "mid-period" dates as terminals, while the redemption period of the fourth cycle lies still in the future. It thus appears that some measure of statistical verification is possible with respect to three out of the four issue periods and with respect to only one out of the four redemption periods.

First, as to issue periods: In the first cycle (May 1–June 20, 1917,) the volume of individual deposits subject to check declined from $6,627,833,000 to $6,560,268,000 or $67,565,000; the volume of loans and discounts increased from $8,751,679,000 to $8,818,312,000 or $66,633,000 and the amount of "money in circulation" increased (May 1–July 1, 1917,) from $4,736,841,963 to $4,850,359,720 or $113,517,757. There was thus a small reduction of deposits and a moderate expansion of loans — both

conceivably accounted for by an increase on the volume of money in circulation [18]— with no evidence that the creation of government deposits was at the expense of existing individual deposits.

In the third cycle (December 31, 1917–March 4, 1918) the volume of individual deposits subject to check declined from $7,497,821,000 to $7,281,-753,000 or $216,068,000; the volume of loans and discounts declined from $9,390,836,000 to $9,139,-225,000 or $251,611,000; and the amount of money in circulation decreased (January 1–March 1, 1918) from $5,120,424,908 to $5,092,530,682 or $27,894,226. The accompaniment of certificate absorption was thus a reduction in the volume of commercial discounts and of checkable deposits, substantial in amount but notably less than the volume of government deposits created within the period.

In the fourth cycle (June 29–August 31, 1918) the volume of individual deposits subject to check rose from $7,161,368,000 to $7,465,681,000 or $304,313,000; the amount of government deposits declined from $1,037,787,000 to $506,583,000 or $531,204,000; the volume of loans and discounts declined from $9,620,402,000 to $9,493,666,000 or $126,736,000; and the amount of money in circulation increased (July 1–September 1, 1918,) from $5,384,797,000 to $5,621,311,000 or $236,514,000. Thus during the two months in which the Treasury was borrowing heavily by fortnightly issues of certificates of indebtedness there was, far from any reduction, a notable increase both in checkable deposits

[18] *Federal Reserve Bulletin,* July, 1918, p. 664.

and in money in circulation. This expansion is not to be explained on the score of loan created deposits — there having been a substantial reduction in the loan account — but must be at least considered in connection with the marked decline in government deposits.

Second, as redemption periods: In the second cycle (November 20–December 31, 1917,) the volume of checkable deposits increased from $7,208,-406,000 to $7,497,821,000 or $289,415,000; the volume of loans and discounts declined from $9,535,-527,000 to $9,390,836,000 or $144,691,000; and the amount of money in circulation increased (November 1, 1917–January 1, 1918,) from $4,924,928,-348 to $5,120,424,908 or $195,496,560. There was thus for the period a large increase of deposits, despite a sharp contraction in loans and a heavy withdrawal of currency.

It is possible to supplement the foregoing, in the case of the third cycle and to a less extent in the case by the fourth cycle by an examination of the operations of the "member banks in leading cities," as reported weekly to the Federal Reserve Board after December 7, 1917. The issue period of the third cycle extended from January 22 to April 22, 1918. The deposits and investments of the banks at approximately the corresponding dates are shown in the following table:

	January 25	April 26
Number of reporting banks......	671	681
Net demand deposits on which reserve is computed	$8,892,320,000	$9,100,089,000
Government deposits	485,086,000	669,352,000

	January 25	April 26
United States securities owned [19].	1,069,395,000	2,178,252,000
Loans secured by U. S. bonds and certificates	374,276,000	316,352,000
All other loans and investments..	9,967,941,000	9,907,521,000

It appears that during the fourteen weeks in which the Treasury placed the six issues of certificates in anticipation of the Third Liberty Loan, to a nominal aggregate of $3,012,085,500, the reporting member banks acquired and retained something more than $1,100,000,000 certificates of indebtedness — without allowance for any possible reduction by distribution and sale of their holdings of Liberty bonds. This huge investment was unaccompanied by any reduction in the banks' commercial deposits, the volume of net demand deposits on which reserve is computed actually increasing in the period $207,769,000. Such additional deposits were not however loan-created. Banking restraint appeared in a net liquidation of loans secured by government obligations and in a moderate reduction of other loans and investments. On the other hand, of the great volume of government deposits created in the period by certificate borrowing, only $184,266,000 remained in the banks as additional public deposits. It is to the "dispersed" residue that the moderate increase in commercial deposit accounts, as well as some part of the increase in the outstanding volume of currency, may be imputed.

The issue period of the fourth cycle extended from June 25 to October 1, 1918, within which were

[19] Certificates of indebtedness were not disassociated from other government obligations until the statement of February 21, 1918.

emitted $4,659,820,000 certificates of anticipation of the Fourth Liberty Loan and during which there were liquidated the outstanding parts of two issues in anticipation of the Third Liberty Loan of the original nominal aggregate of $1,069,053,000. The deposits and investments of the "member banks in leading cities" at the corresponding dates were as follows:

	June 28	October 4
Number of reporting banks......	705	749
Net demand deposits on which reserve is computed	$9,117,565,000	$9,521,346,000
Government deposits	1,211,992,000	693,650,000
United States certificates of indebtedness	621,868,000	1,746,135,000
Loans secured by U. S. bonds and certificates	498,830,000	493,164,000
All other loans and investments.	10,539,986,000	10,521,821,000

Of the certificates issued by the Treasury within these three months, the banks retained out of their allotments $1,124,267,000. This investment was unaccompanied by any reduction of commercial deposits, the volume of demand deposits subject to reserve requirements actually increasing $403,781,000. Nor were such additional deposits loan-created, the banks' loans and other investments showing a slight reduction. A substantial amount of the certificate borrowings, as well as of the earlier government deposits, would seem again to have been "dispersed" and to have reappeared in the increased volume of commercial deposits and money in circulation.

The effects of the redemption period, extending from April 22 to July 18, 1918, within which the six

certificate issues in anticipation of the Third Liberty Loan matured, cannot be as satisfactorily traced from the data available. The first period of the span includes the installment payments of the Third Liberty Loan, while the second period overlaps the resumption of certificate borrowing in anticipation of the Fourth Liberty Loan. If, in order to eliminate the first complication, the first two issues be omitted and the redemption period be narrowed to May 28 –July 18 we still have to do with the facts that within this period three issues of Third Liberty Loan certificates to the nominal amount of $1,612,085,500 matured, and two issues of Fourth Liberty Loan certificates to the nominal amount of $1,599,084,500 were emitted, making a net reduction of $13,001,000. In addition six issues of tax-anticipation certificates to the nominal amount of $1,624,403,500 matured on June 25, 1918.

Within the seven weeks the loans and investments of the banks underwent the following changes:

	May 31	July 19
Number of reporting banks	689	718
Net demand deposits on which reserve is computed	$9,025,495,000	$8,919,235,000
Government deposits	909,312,000	602,803,000
United States Certificates of indebtedness owned	1,041,878,000	527,461,000
Loans secured by U. S. bonds and certificates	512,962,000	473,616,000
Other loans and investments	10,004,162,000	10,535,197,000

Redemption and distribution of certificates are here reflected in a decline of the banks' holdings of certificates of $514,417,000 and a reduction of government deposits of $306,509,000. No part of the

credits so released went to swell commercial deposits, the volume of net deposits on which reserve is computed actually declining $106,260,000. On the other hand the banks increased their investments other than in United States bonds and certificates and in loans secured by such obligations, by $531,035,000. Some part of this expansion was probably due to "loans and other investments made in the form of currency, of which increasing amounts remain outside the banks in the pockets of the people." [20] The remainder can perhaps be best accounted for as short-term investments made by the banks in preparation for renewed war borrowing, in face of a stringent administrative policy toward the conservation of credit.

A reasonable interpretation of the foregoing exhibits, imperfect and inconclusive as they are, would seem to be the following: Certificate borrowing has involved the creation of additional bank credits in the form of government deposits rather than the transfer to the new government account of existing commercial credits. In so far as there has been restraint upon the expansion of commercial borrowing, it has been due to the reluctance of the banks to increase commercial loans and discounts during a period of heavy government short-term borrowing culminating in a Liberty Loan, and to the pressure put by the banks upon commercial borrowers, under like conditions, to apply incoming funds to the liquidation of existing loans. The primary stage in the process has thus been an expansion of credit in

[20] *Federal Reserve Bulletin,* July, 1918, p. 664.

the form of government deposits, unrelieved by a corresponding reduction of commercial deposits.

This expansion has not been self-correcting. With the cessation of certificate issues and the completion of the loan flotation — involving payment and redemption of outstanding certificates — the banks have tended to become less urgent creditors and more liberal lenders. The volume of commercial deposits and the amount of money in circulation have tended to increase to a slight extent from more active commercial discounting by the banks, but to a very marked degree from the accumulation in individual deposit accounts of government credits liberated in the course of public expenditures. The second stage in the process has thus been the dispersion among commercial deposit accounts of the volume of credit traceable to the certificate issues and a withdrawal of some part of such deposits for additional circulation.

These movements — credit expansion in the primary stage and credit dispersion in the secondary stage — have been recurrent in the four successive cycles of our war borrowing, and they have been cumulative in result. [21]

[21] It will be found interesting to compare with the above the similar conclusions reached in England as to the like policies there pursued; see Hartley Withers, "Our Money and the State" (London, 1917), pp. 60–67; "Second Report from the House of Commons Select Committee on National Expenditure" (December 13, 1917), sect. 18–19, and Lord Cunliffe's Report on Currency and the Foreign Exchanges (reprinted in *Federal Reserve Bulletin*, December, 1918).

THE FUTURE

VI

THE FUTURE

In undertaking to estimate the war borrowing policy of the United States at this time, two purposes govern — suggestion and criticism. In the first place, the Treasury faces the necessity of further large scale borrowing even after the cessation of actual fighting, with the consequent possibility that the lessons of the past may induce some change in the practices of the future. In the second place, attention may properly be directed in objective criticism even at this early date to certain phases of our borrowing activity which as tested by historical precedent, by theoretical analysis and by positive result may be fairly described as unwise.

It is certain that the aftermath of the war from which the United States is now gradually emerging will call for further use of public credit. This has been recognized as a requirement of national demobilization and has been incorporated into the fiscal program of the administration. It is equally certain that the sums to be raised by borrowing in the next twelve months, though less relative to the total budget, will attain large proportions. The total cash disbursements of the United States in the fiscal year ending June 30, 1918, were something under $13,000,000 of which about two-thirds were secured

by loans. For the fiscal year ending June 30, 1919, the Secretary of the Treasury had asked that provision be made for an expenditure of $24,000,000,000, of which $16,000,000,000 should be secured by loans. The deficiency appropriation bill of October 1918 added some $6,300,000,000 to the amounts before estimated as necessary to the conduct of the government during 1918–19. With a little less than $7,000,000,000 available in nominal aggregate from the Fourth Liberty Loan, and with $9,000,000,000 as the assumed yield of the new war revenue bill, there would have remained to be provided before July 1, 1919 — had the original program of expenditure been carried out — approximately $15,000,000,000.[1]

In so far as the earlier termination of the war has permitted scaling down of budgetary estimates it is likely that substantial reduction will be made in taxation as well as in borrowing. Definite announcement has already been made of a Fifth Liberty Loan exceeding in nominal amount any one of the first three Loans, and it is not unlikely that the future may require even further commitments of this kind.

How are these huge sums to be provided? Shall the Treasury continue as its chief reliance the same borrowing procedure used in the first phase of the war — short-term loans from the banks by the issue of certificates of indebtedness fundable into or liquidated out of the proceeds of long-term bond issues absorbed by popular subscription? Or shall some alternative device be employed which will en-

[1] *Federal Reserve Bulletin,* November, 1918, p. 1045.

sure the advantages and avoid the disadvantages of certificate borrowing with the result of net gain to the Treasury, the business world and the general public?

The direct advantages of certificate borrowing as a fiscal expedient lie in its ease and its economy. When coupled, as it has been during the past year, with permissive payment by credit, with exemption of government deposits from reserve requirements and with ample rediscount facilities, a mechanism is provided whereby the Treasury may supply itself with practically unlimited funds without difficulty, unpopularity or delay. Certificate issues in this way offer all the administrative convenience of fiat money. Indeed certificate borrowing so conducted might be described as fiat credit. In the one case demand notes passing by tender, in the other case government deposits disbursable by check are created by legislative mandate or administrative order and made available for public expenditure, subject only to the wisdom of the Treasury and the coöperation of the subscribing banks.

It is true that demand notes do not require concurrent action by the banks and that they are free from a definite term of maturity. But these differences are more apparent than real. A banking community aligned for patriotic service under the leadership of the Federal Reserve Banks may be expected to work in the fullest accord with the Treasury program, and the ease with which a maturing issue of certificates may be renewed or reissued removes the old-time inconvenience of short-term borrowing. It has been the policy of the Treasury to

avoid the necessity of such renewal or reissue and to provide for the liquidation of the certificates by the flotation of long-term loans. But this is a sequel to, rather than a condition of certificate borrowing, comparable to a deliberately contemplated funding loan with regard to which demand notes are issued and out of which they are eventually extinguished. Heretofore, the Treasury has floated bond issues enough in volume and frequency to discharge the intervening certificate issues, without appreciable recourse to renewal and without undue reliance upon bank absorption and credit payment. It is likely that the maintenance of this policy has operated to restrain the issue of certificates however easy the process of emission, precisely as the definite contemplation of a refunding operation would check the issue of demand notes. But subject to such restraint, certificate borrowing like fiat money constitutes an almost effortless mode of supplying the Treasury with resources in the amounts and at the times needed for public expenditure.[2]

The objection to demand notes as a fiscal expedient lies in the fact that their proper use calls for a degree of wisdom and reserve, if not superhuman, at least beyond that self-control which any modern state has been able to muster to the service of its exchequer. Were a state to issue inconvertible

[2] It is impossible, however, to neglect the significance of the lengthening "overlap," that is, the extent to which the maturities of the certificates of one cycle extend into the issue period of the succeeding cycle. Taken in conjunction with the heavy over-payment of the first installments on account of loan subscriptions, and the small use of certificates as compared with payment by credit, such procedure verges close upon certificate refunding.

paper money only to the extent and for the duration of its extraordinary requirements and thereafter exercise the same economy in expenditure that it would have practiced under a system of taxation or funding, the expedient would be ideal in its simplicity and economy. If the amount so issued even though for legitimate purpose were so large as to cause inflation and high prices there would result social injustice, and this consideration in itself might be enough to disqualify the whole procedure. But in so far as the Treasury is concerned — until such time as the public expenditure had felt the full effect of inflated prices — fiat money would be an ideally easy and painless mode of supplying the exchequer.

As a matter of fact, however, demand notes if not utterly discredited, at least rest under the gravest doubt as a fiscal expedient by reason of the great likelihood, attested by the experience of state after state that has lapsed into their use, that once resort has been had thereto all the old canons of economy and prudence are gradually weakened and the Treasury drifts insensibly into a course of unchecked and wasteful expenditure. Issue succeeds issue; there develops unwillingness to resort to taxation or funding and the descent to inflation and depreciation becomes swift and easy.

Theoretically, however, there need be no such lapse. A state might issue demand notes within strictly defined and inviolably maintained limits, might exercise the most rigid economy in the disbursement of the funds so provided, and might within a reasonable season liquidate such issues from out the proceeds of loans or taxes. The historic

procedure used by the Governor of Guernsey in building the market hall of his town by an issue of town notes, subsequently redeemed from out of market rentals may not be capable of general adoption.[3] But this is because of the defects of human nature rather than the unsoundness of the device.

The fiscal possibilities of certificate borrowing under existing banking conditions offer an exact parallel. As a painless mode of supplying and replenishing the Treasury with available funds, the certificate of indebtedness may encourage laxity or extravagance in public expenditure; but it need not necessarily do so. Kept within the bounds imposed by periodic redemption from out the proceeds of savings-paid long-term loans, the funds provided by certificate borrowing are likely to be expended with neither greater nor less liberality than other borrowed sums.

The recent experience of the United States has been much of this kind. Certificate borrowings have kept the Treasury in funds without the legislative delay, the administrative burden, and the popular agitation inevitably incident to taxation and funding. There is no evidence to conclude that the presence of ample resources, readily procured, has encouraged public extravagance or laxity. Indeed, our effectiveness both in direct preparation for the national defense and in credit advances to the Allies has probably been greater by reason of the readiness and adequacy of our war chest. Had the war been long prolonged it is possible that with progressive increase

[3] Jevons, "Money and the Mechanism of Exchange" (New York edition, 1876), p. 204; lately cited by Withers, "Our Money and the State" (London, 1917), p. 57.

in cost, less regard would have been had, in accordance with the rule of "easy come, easy go," for economy and restraint in public expenditure under a régime of certificate borrowing than under one of direct funding. All that may be ventured is that here again the fortunate issue of events has saved us from the test.

On the other hand, the economies of certificate borrowing have been less in actual experience than theoretical analysis would suggest. As to interest cost, the rates borne by the issues in anticipation of the First and Second Liberty Loans were in the main the same as the rates of the respective Loans, while the issues in anticipation of the Third and Fourth Liberty Loans actually bore a higher rate than that of the Loans themselves. More important, the conspicuous economy of short-term borrowing — avoidance of treasury plethora — was in considerable part lost by the early adoption and continued use of the policy of a mounting Treasury balance.

All in all, it would appear that although the fiscal advantages of certificate borrowing may have been less than the maximum suggested by hypothetical analysis, they have nevertheless been great — perhaps enough to justify continued use of the expedient, were direct fiscal effectiveness the sole consideration.

But the interest of the Treasury, although the paramount, is not the exclusive purpose of a fiscal device even in war times. The effects upon the business life of the nation and upon the economic well-being of its citizens enter so largely into ac-

count that a policy, which on fiscal grounds might be impeccable, would yet be properly passed over in favor of some alternative measure.

The actual effect of certificate borrowing upon the business life of the country as attested by the state of the money market has seemingly been the avoidance of strain and fluctuation to a very remarkable degree. But this stabilizing effect is to be imputed not to the particular borrowing device which has been employed but to the credit mechanism which statute and administrative policy have provided for use in conjunction therewith. Permissive payment by credit, exemption of government deposits from reserve requirement, rediscount facilities with the Federal Reserve Banks — and not any virtue inherent in or peculiar to certificate borrowing have saved the capital market from the dislocation which might have been anticipated in a period of war borrowing. Given this same mechanism properly adjusted to the changed condition and the same monetary stability might be expected to attend any other or at least some other borrowing device.

The effect of certificate borrowing upon the economic well-being of the citizen body is more difficult of demonstration. The usual barometer — the index number of commodity prices — shows that prices remained stable during the first half of the war borrowing period, and advanced sharply during the second half. The constancy of the first phase may be ascribed to the interval that must elapse before the full effect of any abnormal increase in the volume of credit will show itself in higher prices,

and to the further fact that the course of prices of many commodities entering into the index number was affected directly or sympathetically by government price fixture. The sharp rise of commodity prices in the second phase may be supposed to have resulted from the expiration of the period of incubation and the confinement of price fixing activity to basic materials.

Turning from the evidence of the index-number as at present available, to the factor — an extraordinary increase in the volume of a credit — which in the absence of counteracting elements is assumed to bring about such a rise in prices, the exhibit is unmistakable. Certificate borrowing has involved the creation of a huge volume of additional bank credit in the form of government deposits and there has been no corresponding contraction or deflation incident to the liquidation or funding of the certificate issues.

To sum up: The use of certificates of indebtedness has made it possible for the Treasury to supply its fiscal requirements with great ease and with reasonable although not maximum economy and without any traceable evidence of laxity or extravagance. In the money market, the accompaniment of certificate borrowing has been a remarkable absence of strain or dislocation; but this is imputable to the associated credit mechanism rather than to any specific quality of the certificates. Finally, a direct and unmistakable effect of certificate borrowing has been the creation of a large volume of banking credit in the form of government deposits subsequently dispersed in the course of government expenditure

without succeeding contraction by certificate liquidation.

Both in estimating our experience and in anticipating our requirement, the question thus presents itself: Is it possible to fashion a borrowing device which will secure the gain and avoid the loss identified with the use of certificates of indebtedness? Specifically, this means a procedure which will offer like advantage to the Treasury, will leave the money market as free from strain and will save the price mechanism from credit inflation.

The program which would seem fairly to meet these several requirements is — to the extent that recourse must be had to loans — an initial issue of anticipatory short-term certificates of indebtedness to put the Treasury in immediate funds, followed by a succession of long-term bond issues designed in technique for popular absorption, payable in evenly distributed serial installments and sufficient in aggregate amount both to extinguish existing short-term indebtedness and to obviate further interim borrowing. The loans might be issued either in continuing "over the counter" sale or be floated in periodic "drive" campaigns. In the case of continuing sale, a less number of installments would be required inasmuch as offerings might be suspended whenever the influx of funds became excessive. The effectiveness of this procedure can best be examined by assuming a specific, though hypothetical instance.

Let us assume, in initiation of the procedure, the flotation of a Liberty Loan at the earliest date deemed opportune after the declaration of hostilities,

anticipated to the extent necessary by the emission of certificates of indebtedness. The aggregate amount of the Loan, as allotted, should be enough to discharge the anticipatory certificates then outstanding and to supply the Treasury with funds sufficient to obviate further short-term borrowing prior to the flotation of a succeeding Liberty Loan. Of this principal amount there should be payable, by the terms of subscription, a percentage forthwith or soon after allotment, from the proceeds of which all outstanding certificates should be liquidated or redeemed. The remaining percentage of the subscription should be payable in equal monthly installments, with the intention of maintaining a comfortable Treasury balance until the flotation of the next loan. In succeeding loans, with no provision needed for outstanding certificates, the entire principal should be paid in such monthly installments. No over-payment or anticipated payment of installments should be authorized. Should special exigency require the issue of anticipatory certificates of indebtedness between any two loans, the next succeeding loan should be early enough in flotation and large enough in amount to extinguish such indebtedness and to provide funds sufficient to carry the Treasury through the following interval.

The fiscal advantages of this procedure would be as marked as in the case of certificate borrowing. The labor and expense of the loan campaign would come at the beginning instead of as at present at the end of the borrowing cycle, and there would be an entire saving of the adminis-

trative cost incident to the certificate issues. The Treasury balance would be kept more uniform or at least be saved, barring extraordinary occurrence, from that alternate plethora and depletion which the certificate method has not been able entirely to avoid. The interest charge would be no greater — less indeed by the extent to which a lower rate might continue to be used for the bonds than for the certificates.

As to the money market, there need be no more strain or disturbance incident to an installment loan than to certificate borrowing. The stabilizing quality, we have seen, resides in the credit mechanism offered by the Federal Reserve Banks and not in any peculiar virtue of the borrowing device. If the installment quotas should correspond in volume and interval with the certificate issues, there would in the first instance be like requisition upon the capital supply. The pace of public expenditure would be the same under the two systems, and there would be like redeposit of borrowed funds in subscribing banks qualified as depositaries. Beyond this, should the occasion arise, the stabilizing measures provided by the Federal Reserve System in connection with certificate borrowing — discount and rediscount facilities — would likewise be available under the alternative system. The need might be less, but the remedy would be as ready.

With respect to general well-being, the chief merit of the installment bond, as compared with the certificate of indebtedness, lies in the possibility it offers of effecting our war borrowing without the creation of the huge volume of additional bank

credit which if not directly responsible for inflation and rising prices must at least be regarded as contributory thereto. This wholesale creation of new credit results primarily from the fact that the essence of successful certificate borrowing is the absorption of the certificate issues by the banks and the use of payment by credit in settlement. There need be no counterpart to this in installment bond borrowing. In connection with each installment payment there will doubtless be some expansion of credit by the banks in the form of loans to borrowing subscribers, and some rediscount by member banks with the Federal Reserve Banks in connection with the remittance of installment payments. But this also occurs under certificate borrowing — in connection with the funding loan flotation — as a secondary form of credit expansion. Moreover in the case of installment loans, it will occur only to the extent that the prime purpose of such borrowing — payment from out of savings rather than out of credit — is unrealized, and will represent in so far the short-coming and not the essence of the procedure.

It thus appears that an installment loan, as compared with certificate borrowing, would be as effective and probably more economical in supplying the Treasury's needs; it would cause as little strain and dislocation to the money market — and this of a kind which the general credit apparatus of the country could correct; and it would be directly responsible for a notably less expansion of banking credit with its theatening vista of inflation and rising prices. Compared item for item installment

loan borrowing repeats the important advantages and avoids the conspicuous disadvantages of certificate borrowing.

But there is a further advantage in favor of the installment loan as contrasted with certificate borrowing — the check upon popular non-essential expenditure. A glaring fact in the war experience of the United States, as of every belligerent state, has been the imperfect appreciation of the doctrine that national effectiveness means spending less, quite as much as producing more, and that every unit of productive force required in supplying dispensable needs — every ounce of raw material, fuel, convertible machinery engaged in making things and services without which we can subsist is just so much reduction of the nation's war power.

Much has been said and written of the usefulness of heavy taxation in war finance in correcting this tendency, and such is undoubtedly the case if taxation be widely distributed. That part of the national income surrendered to the state in taxation which would otherwise have been needlessly consumed effects a corresponding release of productive energy for the national defense. But it is equally certain that the same result can attend borrowing and that the largest part of that which the Treasury receives from loans can come from the income rather than from the credit of those who subscribe to bonds. This is the distinction between "credit loans" and "savings loans." If bonds are paid for out of current income that would otherwise have been spent upon non-essen-

tials, the result is the same, as to the release of industrial labor and capital for war service, as though this sum had been taken in taxation. Indeed to the extent that the war taxes are of so restricted a kind and rest in the main upon so limited a class that payments will be effected by the aid of bank loans or at the expense of further savings, there is strong likelihood that the resultant curtailment of unnecessary production will be less than that growing out of a widely distributed bond issue paid for out of current savings.

The final test of a fiscal expedient — preëminently in war financing — is the likelihood of its success. Is the direct absorption of an installment payable bond issue of the needed volume — even a succession of issues extending well beyond the war — within such reasonable bounds as to justify trial. The answer will rest upon our estimate of the economic resource and the patriotic response of American citizenry. As to the first, an installment loan makes no greater requisition upon the income of the nation than a certificate funding loan of like amount, payable to like extent from out of savings. Whatever doubt there may be on this score therefore has to do with the total sum obtainable by borrowing rather than with the particular manner of obtaining it. The Treasury in its wisdom will determine the amount that may reasonably be obtained by borrowing from the national income, and only the borrowing device is a matter of choice.

There remains the possibility of popular disfavor

towards installment payment. Some encouragement for this view would seem to be afforded by the large proportions of the four Liberty Loans paid "in full" upon allotment or upon the first installment date. But we have no knowledge as to in how far this overpayment was influenced by the acquiescence of the Treasury and carried out by the coöperation of the banks. Of the number and volume of subscriptions made nominally in accordance with the terms of the loan, but actually paid by the subscribers through the banks in weekly or monthly installments — we have no available data. It is probable that a considerable part of the great army of new subscribers to each succeeding loan were either secured through or at any rate availed themselves of these facilities. Installment payment is a familiar procedure in American middle-class economy, and the recent successful advocacy of its use in connection with income and excess profits taxation suggests its wider convenience. With installment payment incorporated into the essential plan of the loan and with the whole weight and energy of the loan campaign expended in its behalf, the results would be reasonably secure.

The entire course of our war financing has been an impressive exhibit of popular response. That more than 21,000,000 subscribers[4] could be enrolled for a Fourth Liberty Loan or that 14,472

[4] Some uncertainty has existed as to whether, in this as in earlier loans, the aggregate refers to "subscribers" or "subscriptions"; but all doubt is removed by the explicit use by the Secretary of the Treasury on November 1, 1918, of "subscribers" (*Federal Reserve Bulletin*, November, 1918, p. 1045).

financial institutions could be induced to participate in certificate purchase have been developments far beyond every estimate based upon past experience. It is not too much to anticipate a like favorable result in this particular. Certificate borrowing has the virtue of familiar use; installment payment, the handicap of novelty. But the issue is, on the one hand, between a manner of demand borrowing effected through the direct expansion of bank credit with mischief making possibilities of inflation and rising prices; and, on the other hand, a mode of direct funding which will supply the Treasury's needs from the savings of its citizenry with the accompaniment of restrained expenditure and a heritage of new thrift. If there be any risk in the venture it would surely seem worth the taking.

THE END

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